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ANNUAL REPORT
JULY 1, 1990 - JUNE 30, 1991

BOYD G. STEPHENS, M.D.
CHIEF MEDICAL EXAMINER

850 BRYANT STREET
SAN FRANCISCO, CALIFORNIA 94103

MEDICAL EXAMINER'S OFFICE

CITY AND COUNTY OF
SAN FRANCISCO, CALIFORNIA

ANNUAL REPORT

JULY 1, 1990 - JUNE 30, 1991

DONNA J. ALLISON, Ph.D.
STATISTICIAN AND DATA ANALYST

JOSEPH E. SURDYKA
ADMINISTRATIVE CORONER

BOYD G. STEPHENS, M.D.
CHIEF MEDICAL EXAMINER

ity and County of San Francisco **Chief Medical Examiner · Coroner**

January 1992

Honorable Frank Jordan, Mayor
Honorable Board of Supervisors
City and County of San Francisco
City Hall
San Francisco, California 94102

Dear Mayor Jordan and Honorable Supervisors:

Forensic medicine is the direct application of medicine to the living or the dead. We have included in this report information about some of the functions that we perform. Included is analysis of the data and comparisons of major community problems over several years. Changes and areas that require community or health action are indicated.

Over this past budget year, the department was able to come to full forensic staffing for the first time in many years. This will enable us to reassume many of the responsibilities that were reduced as a result of our staffing difficulties and to restart our training programs. Continual training of our own staff as well as that of other agencies improves the quality of death scene investigation, evidence collection and analysis as well as the accuracy of court room presentations of evidence. Certain types of training are legally mandated. Review of medical records for the courts and the examination of various types of living individuals for various legal reasons will again be routine. These activities save the County a considerable amount of time and money, offsetting the costs of the personnel required. It is important to accentuate that forensic medicine is for those cases involving the living as well as those who are dead.

The number of homicides has decreased slightly. Variation in numbers of homicides is common on a year-to-year basis, and it is too early to predict a trend. Drug-related deaths have decreased significantly, especially for cocaine and heroin. Problems with environmental and work place hazards continue as more accentuation is placed on these problems by the state and federal governments. Drug testing on various types of living patients continues to increase, again reflecting the difficult drug and alcohol problems in the community.

Court requirements in both testing and personnel time have continued to increase. These problems, coupled with the changing financial base for the County, have placed increasing management problems directly on this department.

15) 553-1694 Hall of Justice, 850 Bryant Street San Francisco, CA 94103

ACCREDITED NATIONAL ASSOCIATION OF MEDICAL EXAMINERS

I believe that the office has performed well over the past year and continues to improve as staffing and support increase to meet the ever-increasing demands in our community.

Sincerely,

Boyd G. Stephens, M.D.
Chief Medical Examiner

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INTRODUCTION

The Medical Examiner-Coroner is appointed by law to many responsibilities, the foremost of which is the investigation and certification of a variety of deaths including all deaths of other than natural causation, and any apparently natural deaths in which no physician can reasonably state the cause. The Medical Examiner can utilize any and all medico-legal investigative techniques, including autopsy, to establish both the medical cause of death, and mode or circumstances of death (natural, accident, homicide, suicide or undetermined).

The deaths which must be reported to the Medical Examiner-Coroner, as required by various sections of the Government, Health and Safety and Penal codes, are as follows:

1. Homicide - known or suspected
2. Suicide - known or suspected
3. Following accident or injury (whether the accident or injury is the primary cause or contributory, with death occurring immediately or at some remote time)
4. Medical attendance of less than 20 days
5. No physician in attendance
6. Physician unable to state the cause of death (must be unable, not merely unwilling)
7. Poisoning (food, chemical, drug, therapeutic agents)
8. Occupational or industrial deaths
9. All deaths where a patient has not fully recovered from an anesthetic, whether in surgery, recovery room, or elsewhere
10. All deaths in operating rooms
11. All solitary deaths (unattended by physicians or other person in the period immediately preceding death)
12. All deaths in which the patient is comatose throughout the period of the physician's attendance
13. All deaths of unidentified persons
14. All deaths in which there are grounds to suspect that the death occurred in any degree from a criminal act
15. All deaths involving contagious disease - known or suspected - and constituting a public health hazard
16. Deaths in prison or while under sentence
17. All deaths associated with a rape - known or alleged - or crime against nature
18. All deaths related to or following abortion - known or suspected
19. All deaths involving drowning, fire, hanging, gunshot, stabbing, cutting, starvation, exposure, alcoholism, drug addiction, strangulation or aspiration

Additional mandated responsibilities include protection and safekeeping of property belonging to deceased individuals, conducting inquests when indicated, maintaining proper public records, making reports to other agencies, identification of deceased persons, interment of indigent dead, and many other death-related activities.

The work with the living is discussed elsewhere.

FORENSIC MEDICINE

Forensic medicine generally is considered to be a marriage of medicine and the forensic sciences oriented to medico-legal issues. The field is wide-ranging and growing, becoming even broader in scope than the traditional concept as practiced in Europe.

There has been continued growth and accentuation of the role of forensic medicine in the legal and medico-legal world over the past year. This office has continued its role in forensic medicine for both living and dead, playing a vital role in the community.

We serve in a number of places in the community. Some of these include:

Examination and diagnosis of the living:

- Examination and evaluation of child abuse
- Examination and evaluation of sexual assault injuries
- Examination and evaluation of spousal abuse
- Evaluation of citizens' complaints against the Police Department
- Testimony and interpretation of hospital records and procedures
- Evaluation of force and patterned injuries
- Examination of victims and suspects for trace evidence and injuries
- Collection of blood from suspects and victims for serology, toxicology and other testing
- Court testimony on force, great body injury (GBI) and other issues
- Alcohol and drug interaction in driving under the influence cases and related issues
- Physiologic effects of drug interactions
- Toxicology, including environmental and industrial toxicities
- Teaching - Hospitals, forensic, law enforcement, community
- Analysis for drugs on patients on probation
- Analysis for drugs on management control cases for the County

Examination and evaluation of the dead:

- Scene investigation, reconstruction and analysis
- Evidence collection and testing
- Blood spatter analysis and interpretation
- Patterned evidence analysis and interpretation
- Trace evidence collection
- Time and place of death information
- Forensic autopsy - consultation and interpretation
- Analysis for chemical and limited serology testing
- Forensic toxicology
- Consultation with District Attorney and Public Defender
- Reconstruction Analysis and court presentation
- Teaching - forensic and legal

DEPARTMENT STATUS AND FUTURE

The department faces some significant problems now and for the future. One of these is the increasing numbers of "designer drugs" which are made for a number of reasons, including avoidance of existing Federal laws. These chemical analogues or new molecules constantly require new analytic approaches, techniques and standards. Hazards to users, officers and laboratory personnel are largely unknown, and some of the compounds are so dangerous that skin contact can be lethal or can produce delayed complications, such as Parkinson's disease.

The ever-increasing scientific capabilities in instrumentation and techniques result in a requirement for increased training and equipment for the department. Interfacing with other agencies and departments is increasing along with the need for information sources and sharing. These are some of the major problems for the future. The information and records issue will constitute a major decision and policy-making step over the next five years.

The department needs to obtain a stand-alone computer network to handle our unique requirements. Although the initial costs to the County will be relatively high, the long-term benefits and cost savings will more than offset this investment of time and money. The need to obtain access to major library data bases, legal information, and records management, will be some of the most expensive and time-consuming aspects of department management for this next five year period. The forensic world is growing so rapidly that it is difficult to foresee its exact direction. Trace evidence and DNA serology are unquestionably going to be a large part of that future for the next five years.

DEPARTMENTAL COSTS

1990 - 1991

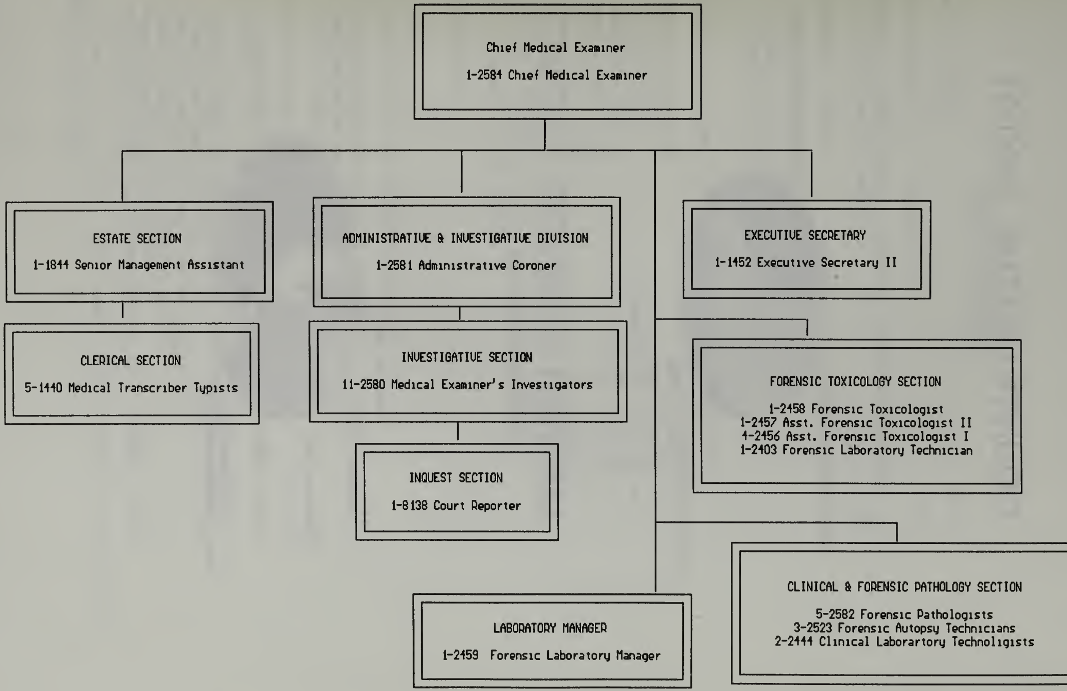
Total Budget	$2,570,326.00*
Transfers to controller, Health and Retirement	$ 459,192.00
NET BUDGET (all other costs)	2,111,134.00
Total Cases	4,480
Cost per case investigated	$ 471.00
Revenues (sales of records, public auctions, fee-for-service work	$ 82,738.00*
Total Costs Ad Valorum Taxes per case investigated	$ 452.00

As indicated elsewhere, this includes all investigative, administrative, scientific and expert witness costs to the County.

* DUI fines money included

ORGANIZATIONAL CHART

Medical Examiner's Office


Chief Medical Examiner
1-2584 Chief Medical Examiner
ESTATE SECTION
1-1844 Senior Management Assistant
CLERICAL SECTION
5-1440 Medical Transcriber Typists
ADMINISTRATIVE & INVESTIGATIVE DIVISION
1-2581 Administrative Coroner
INVESTIGATIVE SECTION
11-2580 Medical Examiner's Investigators
INQUEST SECTION
1-8138 Court Reporter
EXECUTIVE SECRETARY
1-1452 Executive Secretary II
FORENSIC TOXICOLOGY SECTION
1-2458 Forensic Toxicologist
1-2457 Asst. Forensic Toxicologist II
4-2456 Asst. Forensic Toxicologist I
1-2403 Forensic Laboratory Technician
CLINICAL & FORENSIC PATHOLOGY SECTION
5-2582 Forensic Pathologists
3-2523 Forensic Autopsy Technicians
2-2444 Clinical Laborartory Technoligists
LABORATORY MANAGER
1-2459 Forensic Laboratory Manager

COUNTY DEATHS 1990-91

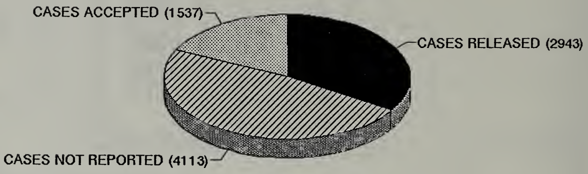


Figure 1.

MANNER OF DEATH 1990-91
JURISDICTION ON 1,537 CASES

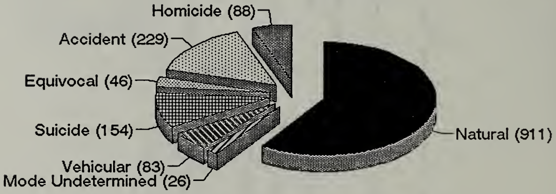


Figure 2.

FISCAL YEAR 1990-91

Total Deaths in County	8,593
Total Deaths Reported to Medical Examiner	4,480
Cases Reported, Investigated and Cleared by the Medical Examiner for physician's signature	2,943
Medical Examiner's Cases	1,537

% Reported to Medical Examiner	52.1
% County Deaths Having Medical Examiner's Jurisdiction	17.9

Cases Accepted by the Medical Examiner (by manner of death)*

1.	Natural Deaths (NC)	898	(58.4%)
2.	Accidents (ACC)	229	(14.9%)
3.	Suicides (SUI)	155	(10.1%)
4.	Homicides (HOM)	88	(5.7%)
5.	Mode Equivocal (EQ)	45	(2.9%)
6.	Cause Unknown (UNK)	26	(1.7%)
7.	Sudden Infant Death Syndrome (SIDS)	13	(0.8%)
8.	Vehicular	83	(5.4%)
9.	Private Autopsies	3**	

**Not included in above figures.

Autopsies performed	1,186
Autopsy Index	77%

Dispositions Authorized by the Medical Examiner

1.	Indigents and fetus dispositions	117
2.	Cases buried by funeral home with Public Administrator-controlled funds	32

Inquests Held or Depositions Taken	38

Identification

1.	Persons brought to Medical Examiner's Office with insufficient identification	196
2.	Persons subsequently identified by fingerprints, dental X-rays or other means	194
3.	Persons buried as unidentified	2
4.	Fingerprints taken and forwarded to FBI, CII, or SFPD	1,429

* The abbreviations following each manner of death will be used in most tables in this report.

MEDICAL EXAMINER CASES FOR 1990-91

In the fiscal year 1990-91, there were 8,593 deaths in San Francisco County. Of these deaths, 4,480 were reported to the San Francisco Medical Examiner's Office. The Medical Examiner's Investigators examined the previous medical history, circumstances surrounding the deaths and, in many cases, the scene of the death, and determined that 1,537 of these deaths came under the jurisdiction of this office. See Figure 1, page 8). Autopsies were performed on 77% of these cases.

1. The highest total number of deaths occurred in January, 1991. The highest number for the various manners of death occurred during other months (e.g. highest number of accidental deaths and homicides in August, highest number of suicides in July). See Table I and Figure 3, page 11.

2. The racial distribution for each manner of death was quite variable. For example, the value of the ratio of whites/blacks was 3.7 for accidents, 14.1 for suicides (as compared to 27.8 for 1989-90), and 0.9 for homicides. See Table II, page 12 and Figure 5, Page 14.

3. The age range distribution for each manner of death was also variable. For example, the highest number of accidental deaths and suicides occurred in the 30-39 year age group, while the highest number of homicides occurred in the 20-29 year age group. During this fiscal year as compared to the previous year, the number of accidental deaths in the age group of 20-59 decreased by 34%, from 223 to 148, mostly as a result of the decrease in deaths by accidental drug overdose. The number of suicides in the age group of 50-89 increased from 36 to 71, an increase of 97%! See Table III, page 12.

4. The overall distribution of deaths by sex (ratio of male/female) was 2.1, but this varied by manner of death from 1.9 in deaths due to natural causes to 7.0 in homicide deaths. See Table IV and Figure 4, page 13.

MEDICAL EXAMINER CASES FOR 1990-91

TABLE I. MANNER OF DEATH - MONTHLY COMPARISON

Month of Death	Manner of Death ACC	HOM	SUI	NC	VEH*	SIDS#	EQ	UNK	TOTALS
July	20	5	20	68	8	2	1	3	127
August	25	12	10	74	1	1	6	0	129
September	12	6	10	73	5	0	4	0	110
October	24	11	17	59	14	0	6	6	137
November	12	7	14	68	7	1	0	2	111
December	15	5	10	90	8	2	6	3	139
January	18	7	17	92	6	2	9	1	152
February	23	8	8	89	10	1	2	0	141
March	23	2	14	70	2	0	1	2	114
April	17	7	15	75	8	3	4	2	131
May	22	3	13	83	8	0	4	5	138
June	18	11	10	57	6	1	3	2	108
TOTALS	229	88	154	898	83	13	46	26	1537

*VEH = Vehicular deaths. These include 16 deaths ruled to be homicide, 63 cases ruled to be accidental, 3 ruled to be equivocal and 1 ruled to be by suicide.

# SIDS = Sudden Infant Death Syndrome

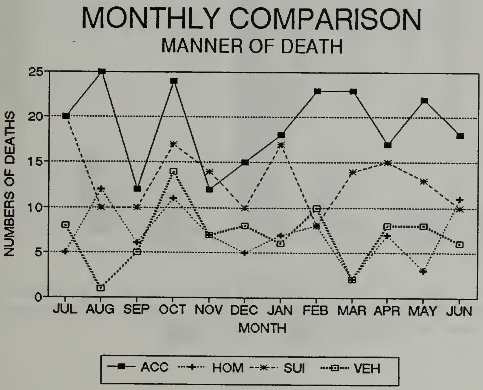


Figure 3.

TABLE II. MANNER OF DEATH BY RACE

Manner of Death

Race	ACC	HOM	SUI	NC	VEH*	SIDS#	EQ	UNK	TOTALS
White	162	36	126	681	45	1	27	19	1097
Black	44	40	9	118	16	7	11	5	250
Asian	19	8	17	89	20	4	7	2	166
Other	4	4	2	10	2	1	1	0	24
TOTALS	229	88	154	898	83	13	46	26	1537

TABLE III. MANNER OF DEATH BY AGE

Manner of Death

Age Group	ACC	HOM	SUI	NC	VEH*	EQ	UNK	TOTALS
0-11 months	1	0	0	14#	0	0	2	17
1-5 years	4	0	0	4	3	0	0	11
6-12 years	1	0	0	0	2	0	0	3
13-16 years	3	2	0	1	5	0	0	11
17-19 years	4	7	2	0	3	0	0	16
20-29 years	24	31	20	11	28	2	1	117
30-39 years	62	26	37	55	11	11	9	211
40-49 years	45	10	23	108	5	14	5	210
50-59 years	17	3	29	121	8	5	2	185
60-69 years	18	5	15	204	4	8	5	259
70-79 years	16	3	19	186	6	3	0	233
80-89 years	26	1	8	161	7	2	1	206
90+ years	8	0	1	46	1	1	1	58
TOTALS	229	88	154	911	83	46	26	1537

# Includes 13 SIDS (Sudden Infant Death Syndrome) deaths

* VEH = Vehicular deaths. These include 16 deaths ruled to be homicide, 63 cases ruled to be accidental, 3 cases ruled to be equivocal, and 1 ruled to be by suicide.

TABLE IV. MANNER OF DEATH BY SEX

Manner of Death

Sex	ACC	HOM	SUI	NC	VEH*	SIDS#	EQ	UNK	TOTALS
M	152	77	120	583	53	8	30	24	1047
F	77	11	34	315	30	5	16	2	490
TOTALS	229	88	155	898	83	13	46	26	1537

* = Vehicular deaths. These include 16 cases ruled to be homicide, 63 cases ruled to be accidental, 3 ruled to be Mode Equivocal, and 1 ruled to be by suicide.

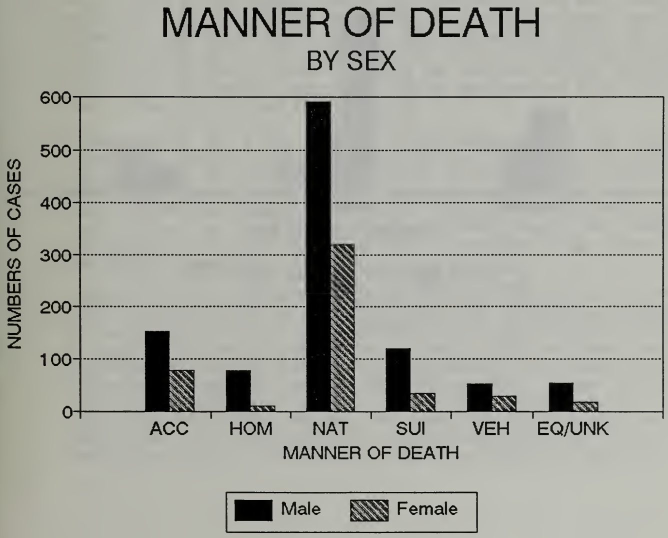
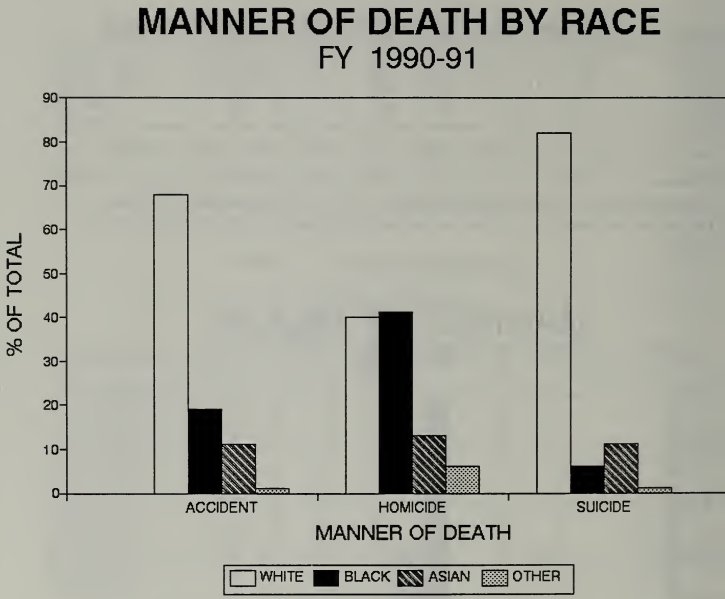


Figure 4.



MANNER OF DEATH BY RACE
FY 1990-91

Figure 5.

YEARLY COMPARISON OF MEDICAL EXAMINER'S CASES

Comparisons of manners of death as well as methods used over the last eight fiscal years are presented in this section. The most significant differences which have occurred over the last eight years which can be observed in these tabulations include:

1. Regarding manners of death, the number of homicides (88) during fiscal year 1990-91 decreased slightly from the previous fiscal year and is the lowest number of homicides since fiscal year 1983-84. The number of accidental deaths decreased by 69 (23%) from 1989-90, in part due to fewer accidental drug deaths during fiscal year 1990-91. The number of cases ruled to be suicide (154) was a 20% increase from fiscal year 1989-90 but was still the second lowest number of suicides since fiscal year 1984-85. The number of deaths due to natural causes which came under the jurisdiction of this office was the second lowest seen for any year during the past eight years. However, the total number of vehicular deaths (83) was the highest seen for any year during the last eight fiscal years. (See Table V and Figure 6, page 16 and Figure 2, page 8).

2. With respect to the methods used in homicide deaths, the most notable difference from the previous fiscal year is an 18% decrease in deaths caused by firearms, from 61 to 50. However, homicide deaths due to firearms accounted for 48% of all homicide deaths. The number of deaths which resulted from stabbing (17) was the same as for the previous fiscal year, the lowest number seen during the previous eight fiscal years. (See Table VI and Figure 7, page 17).

3. Although there was a 20% increase in the number of suicides during fiscal year 1990-91 as compared to 1989-90, the total number of suicide deaths is the second lowest number seen since fiscal year 1984-85. There was a notable increase (86%) in deaths due to jumps from buildings but the total number (13) was still the second lowest number seen over the previous eight fiscal years. Firearms remain the leading method used in suicidal deaths (26% of all suicides). (See Table VII and Figure 8, page 18).

4. Regarding deaths ruled to be accidental, the most significant observation is a 38% decrease in accidental deaths due to drugs, as compared to the previous fiscal year. There were 2 accidental deaths due to firearms during 1990-91. Deaths due to smoke inhalation doubled while deaths due to burns decreased by 33%. The number of accidental deaths due to falls remained at approximately the same level as seen over the previous two fiscal years, a considerably lower level than had been seen prior to 1988-89. However, the number of deaths from falls is still second only to deaths from drugs as a leading cause of accidental deaths (See Table VIII and Figure 9, page 19 and Figure 10, page 20).

YEARLY COMPARISONS OF MEDICAL EXAMINER-CORONER'S CASES

TABLE V. YEARLY COMPARISON OF MANNER OF DEATH

Manner of Death	Fiscal year '83-'84	'84-'85	'85-'86	'86-'87	'87-'88	'88-'89	'89-'90	'90-'91
Accident	230	214	231	222	258	258	298	229
Homicide	84	95	120	110	110	91	94	88
Suicide	182	153	161	171	162	171	128	154
Natural	1082	1210	1150	1040	1074	1010	903	911
Vehicular*	51	60	61	46	75	71	76	83
Equiv/Undet	42	55	63	62	82	85	76	72
TOTALS	1671	1787	1786	1651	1761	1686	1575	1537

* Vehicular deaths include 16 cases ruled to be homicide, 63 cases ruled to be accidental, and 3 cases ruled to be Mode Equivocal/Undetermined and 1 case ruled to be suicide.

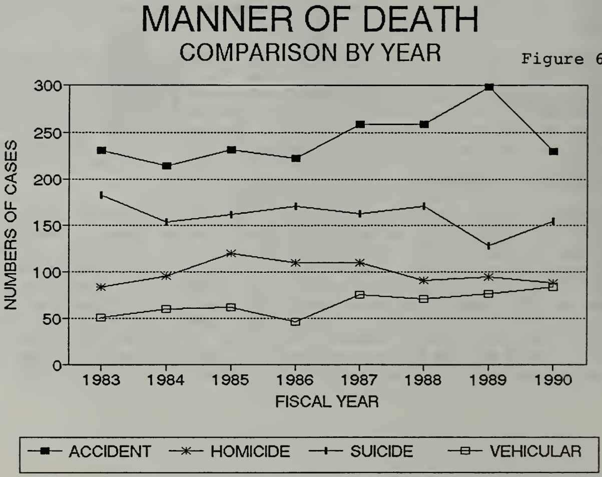


Figure 6.

TABLE VI. YEARLY COMPARISON OF HOMICIDE METHODS USED

Method Used	'83-'84	'84-'85	'85-'86	'86-'87	'87-'88	'88-'89	'89-'90	'90-'91
	Fiscal year							
Firearms	27	26	40	41	48	41	61	50
Stabbing	26	31	34	32	35	21	17	17
Traum. Inj.	5	19	18	21	23	22	10	14
Vehicular	10	7	11	7	13	16	10	16
Asphyxiation	8	8	8	8	3	5	3	5
Other	5	4	9	1	1	2	3	2
TOTALS	84	95	120	110	123	107	104	104

HOMICIDES
COMPARISON BY YEAR

Figure 7.

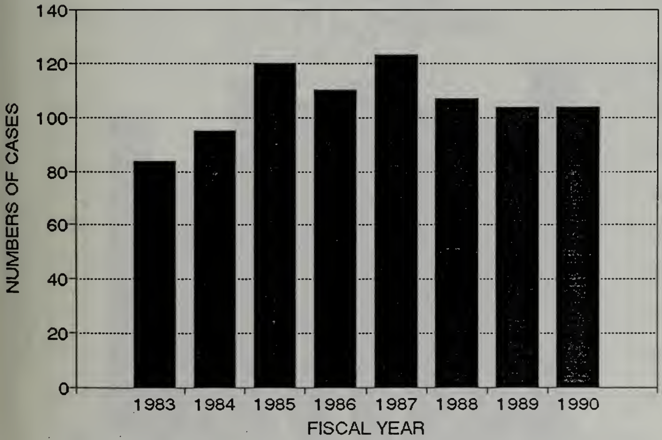


TABLE VII. YEARLY COMPARISON OF SUICIDE METHODS USED

Method Used	Fiscal year '83-'84	'84-'85	'85-'86	'86-'87	'87-'88	'88-'89	'89-'90	'90-'91
Firearms	48	34	46	45	42	44	35	40
Poisoning	38	34	36	32	32	44	31	37
Hanging	28	29	28	29	28	17	23	25
Jump/GG Brdg	19	18	17	19	18	15	10	13
CO Poisoning	4	8	6	6	2	2	9	5
Jump/Building	23	15	16	19	19	30	7	13
Asphyx/strang	1	1	2	3	7	7	6	6
Cut/stab	10	4	5	9	8	5	3	7
Jump/Bay Brdg	2	0	0	1	1	2	2	0
Other	2	10	1	2	2	1	2	7
Drowning	1	0	3	6	3	2	0	1
Burning	2	0	1	0	0	2	0	2
TOTALS	178	153	161	171	162	171	128	156

SUICIDES
COMPARISON BY YEAR

Figure 8.

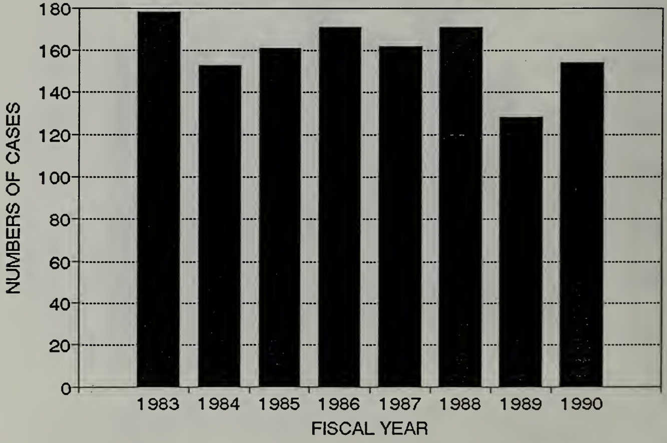


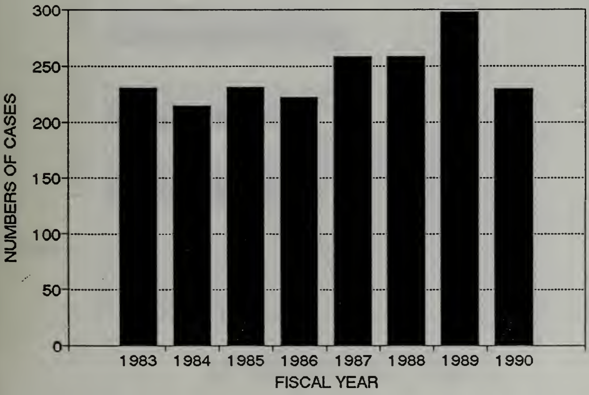
TABLE VIII. YEARLY COMPARISON OF ACCIDENTAL* DEATH SITUATIONS

	Fiscal year							
Situation	'83-'84	'84-'85	'85-'86	'86-'87	'87-'88	'88-'89	'89-'90	'90-'91
Drugs/Poisons	66	78	96	92	100	144	157	97
Falls	82	74	67	80	76	54	53	55
Burns	33	14	15	6	12	3	15	10
Aspiration	9	14	7	8	10	5	13	10
Drowning	3	6	9	5	14	11	10	12
Head Trauma	-	-	-	-	-	-	11	3
Asphyxia	3	2	6	4	2	8	8	3
Med. Misadv.	-	-	-	12	13	6	7	12
Other	35	22	29	3	7	2	5	5
Smoke inhal.	1	3	0	9	8	11	4	8
Drug/Alcohol Abuse Rel.	-	-	-	-	13	9	3	6
Hanging	-	-	-	-	2	2	0	2
Firearms	1	1	2	1	1	3	0	2
Drug Reactions	-	-	-	-	-	-	-	4
TOTALS	230	214	231	222	258	258	298	229

* Vehicular deaths are not included in this tabulation.

ACCIDENTS
COMPARISON BY YEAR

Figure 9.



YEARLY COMPARISON OF ACCIDENTAL DEATHS
DUE TO DRUGS, ASPIRATION AND FALLS

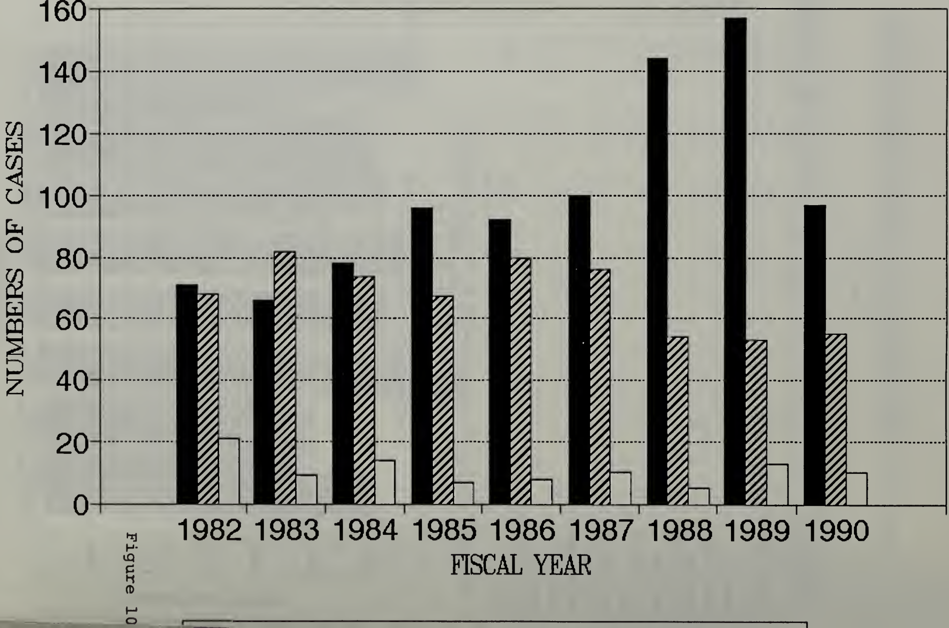


Figure 10

TABLE IX. VIOLENT DEATHS

Of the 1,537 deaths investigated by the Medical Examiner's Office during 1990-91, 623 were determined to be the result of violence.

Mode	Total No.	% of Coroner's Cases	% of County Deaths
ACCIDENT	292	19.0	3.4
Vehicular	63	4.1	
Non-vehicular	229	14.9	
SUICIDE	155	10.1	1.8
Vehicular	1	0.1	
Non-vehicular	154	10.0	
HOMICIDE	104	6.8	1.2
Vehicular	10	1.0	
Non-vehicular	94	5.7	
EQUIVOCAL	46	3.0	0.5
Vehicular	3	0.2	0.03
Non-vehicular	43	2.8	0.5

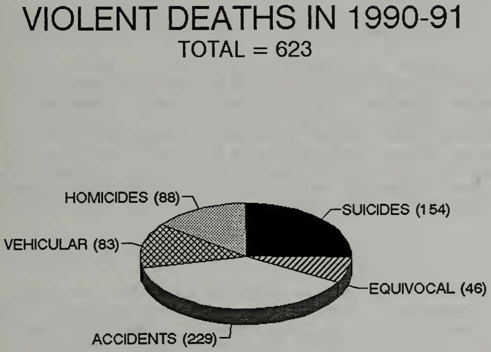


Figure 11.

ACCIDENTAL DEATHS

Two hundred and ninety-two deaths were ruled to have been due to accidental means during the 1990-91 fiscal year. The number of individuals dying by each manner of accidental death are indicated in Figure 12, page 25 and Table X, page 26, and the percentages of all accidental deaths represented by each manner are indicated on Table X, page 26.

Of the accidental death victims tested for alcohol and drugs (i.e. those in the hospital for less than 24 hours), a large percentage had significant levels of alcohol in their blood; many had abuse drugs present (See Table X, page 26).

Abuse Drug Involvement (Table XI, page 27)

Overall, the number of accidental death cases where abuse drugs were present decreased dramatically from fiscal year 1989-90 (212 cases) to fiscal year 1990-91 (110 cases), a 48% decrease! Of the deaths caused by drugs, heroin (measured as morphine) was seen most frequently (47 cases). The second most frequently seen abuse drug in deaths due to drugs was cocaine (44 cases). The number of cases with cocaine present decreased by 28% from the previous fiscal year (72 to 52), the number of cases with heroin present decreased by 53% (from 105 to 49 cases), while deaths with amphetamine present decreased by 75% during this same time period (from 32 to 8). Abuse drugs may have played a role in accidental deaths by falls (3 cases), drowning (2 cases) and smoke inhalation (1 case).

Racial Distribution (Figure 13, page 28 and Table XII, page 29)

Overall, accidental deaths occurred most frequently in whites. Accidental deaths due to head trauma decreased 73% from 1989-90 to 1990-91 (from 11 to 3). Such deaths occurred more frequently in whites (100%) than would be anticipated by the overall involvement of this racial group in accidental deaths (68%). Asians are more heavily represented in vehicular deaths, with 21% of accidental vehicular deaths involving Asians, and blacks are more heavily represented in deaths by smoke inhalation than would be expected based on the general involvement of these racial groups in all types of accidental deaths. During fiscal year 1990-91, there were 2 accidental deaths due to firearms and 2 due to hanging.

Age Distribution (Figure 14, page 30 and Table XIII, page 31)

Deaths due to burns and vehicular accidents are the most common causes of accidental deaths in the youngest age group (0-5 years). Accidental deaths in the age group from 6 to 19 years constitute only 4.4% of all accidental deaths. The most common causes of accidental deaths in people over 60 years of age are aspiration (80% of all aspiration deaths), burns (50% of all deaths due to burns), falls (62% of all deaths due to falls), smoke inhalation (50% of all deaths due to smoke inhalation), and vehicular accidents (29% of all such deaths). As noted in last year's annual report, there was a decrease seen in

Age Distribution (Continued).

the number of deaths due to falls in people over 60 years of age from 1987-88 to 1988-89 (from 54 to 30). During fiscal year 1989-90, there were only 31 such deaths and in 1990-91 there were 34 such deaths, virtually no different from the preceding fiscal year. Deaths due to drug overdoses are concentrated in the 20-49 year age group with 45% of all deaths due to drug overdoses in the 30-39 year age group.

Distribution by Sex (Table XIV, page 32).

Males are nearly twice as likely as females to be the victims of accidental deaths. This difference is even more pronounced in deaths due to drug overdoses and is less pronounced in deaths due to aspiration, burns and drug reactions. The decrease in deaths from drug overdoses as compared to the previous fiscal year involved only deaths in males (45% decrease!) while the drug overdose deaths in females remained the same at 25.

NON-VEHICULAR ACCIDENTS

This category includes all unintentional fatalities. There were 229 accidental deaths (non-vehicular) which accounted for 14.9% of the Medical Examiner death investigations for the fiscal year of 1990-91.

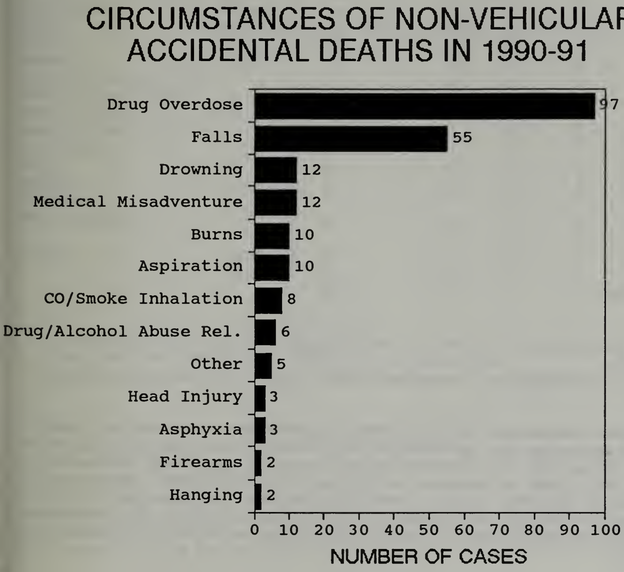


Figure 12.

TABLE X. ACCIDENTAL DEATHS BY MODE

Drug and Alcohol Involvement

METHOD	NUMBER	% OF TOTAL ACCIDENTS	% ALC.*	AVE. ALC. CONC (g%)	% DRUGS**
DRUG O.D.	97	33.2	47	0.18%	--
VEHICULAR	63	21.6	41	0.15%	9
FALLS	55	18.8	46	0.19%	10
BURNS	10	3.4	25	0.17%	0
ASPIRATION	10	3.4	33	0.16%	0
HEAD TRAUMA	3	1.0	0	-	0
DROWNING	12	4.1	0	-	33
ASPHYXIA	3	1.0	67	0.26%	33
MEDICAL MISADVENTURE	12	4.1	0	-	0
OTHER	5	1.7	0	-	33
SMOKE/CO INHALATION	8	2.7	25	0.13%	14
DRUG/ALC ABUSE REL.	6	2.1	0	-	100
HANGING	2	0.7	50	0.07	50
FIREARMS	2	0.7	50	0.04	0
DRUG REACTIONS	4	1.4	0	-	0

* Refers to percentage of victims (of those tested) with positive blood ethyl alcohol levels.

** Refers to percentage of victims (of those tested) with positive tests for abuse drugs.

Overall, alcohol was present in the systems of approximately one-third of those dying in accidents and may have been a contributing factor in the accident. The average blood ethyl alcohol concentration was slightly lower for nearly every mode of accident as compared to the previous fiscal year. However, it should be noted that the average blood ethyl alcohol concentration for all modes, except for hanging and deaths by firearms, when present, are substantially higher than the level of 0.08% which is considered to be intoxicated when driving.

TABLE XI. ABUSE DRUGS PRESENT IN NON-VEHICULAR ACCIDENTS

	DRUGS			
Situation	Cocaine	PCP	Morphine	Amphetamines
ASPHYXIA/SUFFOCATION	0	0	0	0
ASPIRATION	0	0	0	0
BURNS	0	0	0	0
FALLS	3	0	0	0
DROWNING	1	0	1	0
DRUG/ALCOHOL ABUSE REL.	3	0	0	0
MEDICAL MISADVENTURE	0	0	0	0
DRUG OVERDOSE	44	1	47	8
SMOKE/CO INHALATION	1	0	0	0
HEAD TRAUMA	0	0	0	0
OTHER	0	0	1	0
HANGING	0	0	0	0
FIREARMS	0	0	0	0
DRUG REACTIONS	0	0	0	0
TOTALS	52	1	49	8

* Drugs may have been present singly or in combination
** Drugs used therapeutically are not included in this tabulation

Overall, the number of accidental death cases where abuse drugs were present decreased 48%, from 212 in 1989-90 to 110 in 1990-91! The number of deaths due to an overdose of cocaine decreased from 66 in 1989-90 to 44 in 1990-91, a 33% decrease. The number of deaths due to an overdose of heroin (measured as morphine), decreased 54%, from 103 in 1989-90 to 47 in 1990-91. The number of deaths where PCP was present decreased from 3 in 1989-90 to 1 in 1990-91. The most remarkable change was seen in accidental deaths in which amphetamines were present - there was an 75% decrease, from 32 in 1989-90 to 8 in 1990-91.

RACE OF NON-VEHICULAR ACCIDENT VICTIMS 1990-91

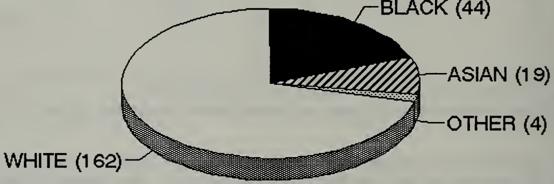


Figure 13.

TABLE XII. ACCIDENTAL DEATH SITUATIONS BY RACE

	Race				
Method	White	Black	Asian	Other	Total
Asphyxia	3 (100%)*	0	0	0	3
Aspiration	7 (70%)	2 (20%)	1 (10%)	0	10
Burns	7 (70%)	1 (10%)	1 (10%)	1 (10%)	10
Drowning	4 (33%)	3 (25%)	3 (25%)	2 (17%)	12
Drug/Alcohol Abuse Rel	3 (50%)	3 (50%)	0	0	6
Drug O.D.	70 (72%)	23 (24%)	4 (4%)	0	97
Drug Reactions	2 (50%)	0	2 (50%)	0	4
Falls	42 (76%)	7 (13%)	5 (9%)	1 (2%)	55
Firearms	0	0	2 (100%)	0	2
Hanging	2 (100%)	0	0	0	2
Head Trauma	3 (100%)	0	0	0	3
Medical Misadventure	9 (75%)	2 (17%)	1 (8%)	0	12
Smoke/CO Inhalation	5 (63%)	3 (37%)	0	0	8
Vehicular	38 (60%)	12 (19%)	13 (21%)	0	63
Other	5 (100%)	0	0	0	5
Totals	200 (68%)	56 (19%)	32 (11%)	4 (1%)	292

* Row percentages refer to percentages by race for each mode. These can be compared to total percentages for each race to see whether a mode is more or less prevalent in a racial group. For instance, deaths from drowning appear to occur less frequently in whites (33%) than the general involvement of whites in accidents (68%). Vehicular deaths occur more frequently in Asians (21%) than would be predicted by the involvement of Asians in accidental deaths overall (11%). Deaths due to smoke inhalation appear to occur more frequently in blacks (37%) than would be anticipated, based on the involvement of blacks in accidental deaths (19%).

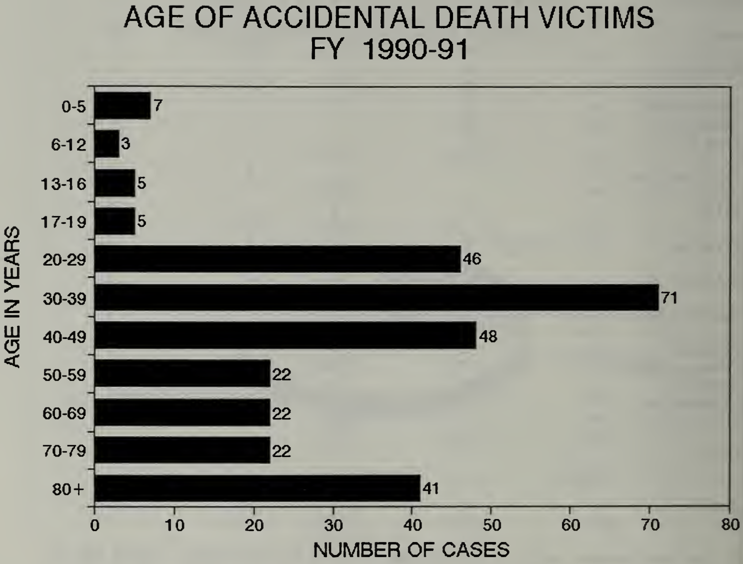

AGE OF ACCIDENTAL DEATH VICTIMS
FY 1990-91
AGE IN YEARS
0-5
6-12
13-16
17-19
20-29
30-39
40-49
50-59
60-69
70-79
80+
7
3
5
5
46
71
48
22
22
22
41
0
10
20
30
40
50
60
70
80
NUMBER OF CASES

Figure 14.

TABLE XIII. ACCIDENTAL DEATH SITUATIONS BY AGE

	Age Range										
Method	0-5	6-12	13-16	17-19	20-29	30-39	40-49	50-59	60-69	70-79	80+
Asphyxia	0	0	0	0	2 (67%)	0	0	0	0	0	1 (33%)
Aspiration	1 (10%)	0	0	0	0	0	0	1 (10%)	1 (10%)	3 (30%)	4 (40%)
Burns	2 (20%)	0	0	1 (10%)	0	1 (10%)	1 (10%)	0	1 (10%)	1 (10%)	3 (30%)
Drowning	1 (8%)	0	2 (17%)	0	1 (8%)	3 (25%)	1 (8%)	2 (17%)	1 (8%)	1 (8%)	0
Drug/Alc Abuse Rel	0	0	0	0	1 (17%)	1 (17%)	2 (33%)	1 (17%)	1 (17%)	0	0
Drug O.D.	0	0	0	1 (1%)	14 (14%)	44 (45%)	28 (29%)	7 (7%)	2 (2%)	0	1 (1%)
Drug Reactns	0	0	0	0	1 (25%)	0	1 (25%)	0	2 (50%)	0	0
Falls	0	0	1 (2%)	0	3 (5%)	6 (11%)	7 (13%)	4 (7%)	6 (11%)	9 (16%)	19 (35%)
Firearms				1 (50%)	1 (50%)	0	0	0	0	0	0
Hanging	0	0	0	0	0	2 (100%)	0	0	0	0	0
Head Trauma	0	0	0	0	0	1 (33%)	0	1 (33%)	1 (33%)	0	0
Medical Misad.	1 (8%)	1 (8%)	0	0	1 (8%)	0	3 (25%)	1 (8%)	1 (8%)	1 (8%)	3 (25%)
Smoke/CO Inhal.	0	0	0	1 (12%)	0	2 (25%)	1 (12%)	0	0	1 (12%)	3 (38%)
Vehicular	2 (3%)	2 (3%)	2 (3%)	1 (2%)	22 (35%)	9 (14%)	3 (5%)	5 (8%)	4 (6%)	6 (10%)	7 (11%)
Other	0	0	0	0	0	2 (40%)	1 (20%)	0	2 (40%)	0	0
TOTALS	7	3	5	5	46	71	48	22	22	22	41
% OF TOTAL	2%	1%	2%	2%	16%	24%	16%	8%	8%	8%	14%

* Row percents refer to percentage by age range for each mode. These can be compared to total percentages for each age range to see if a mode is more or less prevalent in an age group. For example, burns occurred more frequently in the 0-5 years of age group (20%) than the general involvement of this age group in accidents (2%) while falls in the 30-39 year age group (11%) occurred less frequently than all accidents in this age group (24%). Falls in the age group 60-80+ occurred more frequently (62%) than all accidents in this age group (30%).

TABLE XIV. ACCIDENTAL DEATH SITUATIONS BY SEX

	Sex	
Method	Male	Female
Asphyxia	0 (0%)*	3 (100%)
Aspiration	5 (50%)	5 (50%)
Burns	5 (50%)	5 (50%)
Drowning	7 (58%)	5 (42%)
Drug/Alcohol Abuse Related	4 (67%)	2 (33%)
Drug O.D.	72 (74%)	25 (26%)
Drug Reactions	2 (50%)	2 (50%)
Falls	36 (65%)	19 (35%)
Firearms	2(100%)	0 (0%)
Hanging	2(100%)	0 (0%)
Head Trauma	2 (67%)	1 (33%)
Medical Misadven.	6 (50%)	6 (50%)
Smoke/CO Inhal.	5 (62%)	3 (38%)
Vehicular	39 (62%)	24 (38%)
Other	4 (80%)	1 (20%)
TOTALS	191	101
% OF TOTAL	65%	35%

* Row percents refer to percentages by sex for each mode. These can be compared to total percentages for each sex to see whether a mode is more or less prevalent in one sex. For example, drug overdoses appears to occur more frequently in males (74%) than the general involvement of males in accidents (65%), while deaths from asphyxia occur more frequently in females (100%) than all accidents in females (35%).

VEHICULAR DEATHS

In 1990-91, there were 83 vehicular fatalities in San Francisco. The number of such fatalities by type are indicated in Figure 15, page 34 and Table XV, page 35. The percentages of all vehicular fatalities represented by type are shown on Table XV, page 35. The largest number of vehicular fatalities involved pedestrians; the second largest number involved automobile drivers. It is interesting to note that the number of automobile driver fatalities increased by 50% from 1989-90 (14) to 1990-91 (21) while the number of auto passenger fatalities increased by 78%, from 9 in 1989-90 to 16 in 1990-91.

Of the vehicular fatalities tested for alcohol (i.e. those in the hospital for less than 24 hours), drivers of autos and motorcycles showed a positive test for ethyl alcohol more frequently than any other specific type of vehicular fatality. Excluding the group of "Other/Unknown", pedestrians and auto passengers had the highest average blood ethyl alcohol concentration (0.19%). Excluding the small group of bicycle drivers, auto passengers and pedestrians were those vehicular fatalities with the highest percentages of drugs present.

Abuse Drug Involvement (Table XVI, page 35)

Cocaine was the abuse drug seen most frequently in vehicular fatalities (4 cases) followed in frequency by amphetamines and PCP (1 case each). The number of vehicular fatalities with abuse drugs present was 6 during 1990-91, the same as in 1989-90, as compared to 5 in 1988-89 and 15 in 1987-88.

Age Distribution (Table XVII, p. 36, Table XVIII, p. 37, and Figure 16, p. 36)

The average age of motorcycle drivers was 34 years as compared to the average age of auto drivers (42 years) who were vehicular fatalities during 1990-91. The mean age of pedestrians dying as traffic fatalities was the highest seen for any type of traffic fatality (48 years) with the 50 year and over age groups being overrepresented in the pedestrian fatalities (48%) as compared to the overall involvement of this age group in all types of traffic fatalities (32%). However, there was a decrease from 22 pedestrian fatalities in the 50 year and over age groups in 1989-90 to 13 in 1990-91. There was a 64% increase in vehicular deaths in the 20-29 year age group and a 400% increase in the 0-16 year age group as compared to 1989-90!

Distribution by Sex (Table XVIII, page 37)

Males were the predominant victims in all types of driver vehicular fatalities while females predominated in pedestrian fatalities.

Racial Distribution (Table XVIII and Figure 17, page 37)

Overall, vehicular fatalities occur more frequently in whites. Asians were represented more heavily among deaths of pedestrians (30%) and auto passengers (38%) than would be expected by their involvement in all vehicular fatalities (24%). While blacks were most heavily represented among auto driver fatalities (36%) during 1989-90, interestingly there were no fatalities in black auto drivers during 1990-91. The percentage of white auto driver fatalities increased from 29% of the total in 1989-90 to 57% of the total in 1990-91!

VEHICULAR DEATHS

In San Francisco, there were 83 vehicle-related fatalities (63 accidents, 16 homicides, 1 death ruled to be suicide and 3 with mode equivocal), accounting for 5% of the Medical Examiner death investigations for the fiscal year 1990-91.

TYPES OF VEHICULAR DEATHS
FY 1990-91

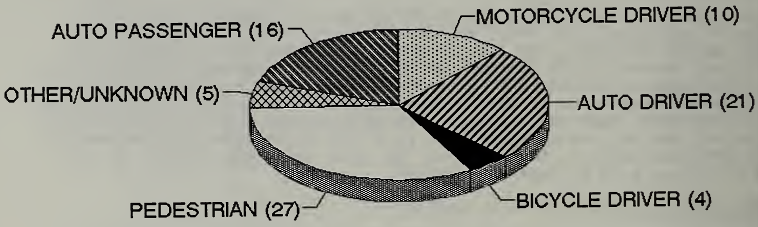


Figure 15.

TABLE XV. VEHICULAR FATALITIES IN 1990-1991

Drug and Alcohol Involvement

METHOD	NO.	% WITH ALCOHOL*	AVE. ALC. CONC. (g%)	% WITH DRUGS*	% WITH DRUGS+ALC
AUTO DRIVER	21 (25%)	52	0.17	0	0
AUTO PASSENGER	16 (19%)	27	0.19	14	0
BICYCLE DRIVER	4 (3%)	25	0.15	25	0
MOTORCYCLE DRIVER	10 (12%)	50	0.11	0	0
PEDESTRIAN	27 (33%)	20	0.19	14	5
OTHER/UNKNOWN	5 (6%)	40	0.22	0	0

* Refers to percentages of victims (of those tested) with positive blood ethyl alcohol levels.

** Refers to percentage of victims (of those tested) with positive blood tests for abuse drugs.

TABLE XVI. ABUSE DRUGS PRESENT IN VEHICULAR FATALITIES

	Drugs			
	Cocaine	PCP	Heroin	Amphetamines
Situation				
AUTO DRIVER	0	0	0	0
AUTO PASSENGER	2	0	0	0
BICYCLE DRIVER	0	0	0	1
MOTORCYCLE DRIVER	0	0	0	0
PEDESTRIAN	2	1	0	0
UNKNOWN/OTHER	0	0	0	0
TOTALS	4	1	0	1

TABLE XVII. VEHICULAR FATALITIES BY AGE

	Age										
Situation	0-5	6-12	13-16	17-19	20-29	30-39	40-49	50-59	60-69	70-79	80+
AUTO DRIVER	0	0	0	0	9 (43%)	5 (24%)	0	2 (10%)	1 (5%)	2 (10%)	2 (10%)
AUTO PASSENGER	1 (6%)	1 (6%)	2 (12%)	2 (12%)	7 (44%)	0	1 (6%)	0	0	0	2 (12%)
BICYCLE DRIVER	0	0	0	0	2 (50%)	1 (25%)	0	0	1 (25%)	0	0
MOTORCYCLE DRIVER	0	0	0	0	5 (50%)	2 (20%)	1 (10%)	2 (20%)	0	0	0
PEDESTRIAN	2 (7%)	1 (4%)	1 (4%)	1 (4%)	4 (15%)	2 (7%)	3 (11%)	3 (11%)	2 (7%)	4 (15%)	4 (15%)
OTHER/UNKNOWN	0	0	2 (40%)	0	1 (20%)	1 (20%)	0	1 (20%)	0	0	0
TOTALS	3	2	5	3	28	11	5	8	4	6	8
% of total	(4%)	(2%)	(6%)	(4%)	(34%)	(13%)	(6%)	(10%)	(5%)	(7%)	(10%)

* Row percents refer to percentages by age group for each situation. These can be compared to total percentages for each age group to see if a situation is more or less prevalent in one age group. For example, accidental deaths of automobile drivers appear to occur more frequently in the 30-39 year age group (24%) than the general involvement of this age group in fatal vehicular accidents (13%), while accidental deaths of pedestrians in the 20-29 year age group (15%) occur less frequently than all vehicular accidents in this age group (34%).

VEHICULAR DEATHS BY AGE
FY 1990-91

Figure 16.

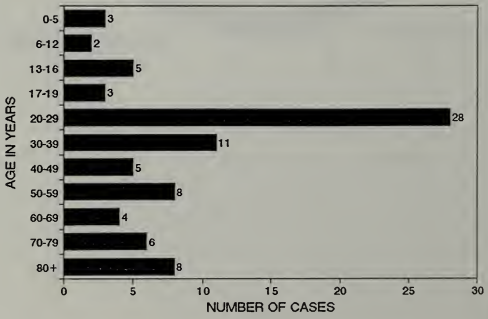


TABLE XVIII. DEMOGRAPHICS OF VEHICULAR FATALITIES

	Sex		Race					Age
Situation	%M	%F	%W-NH	%W-H	%B-NH	%A	%O	AVE. AGE
AUTO DRIVER	67	33	57	19	0	19	5	42
AUTO PASSENGER	50	50	31	0	25	38	6	29
MOTORCYCLE DRIVER	100	0	60	0	30	10	0	34
PEDESTRIAN	48	52	37	11	22	30	0	48
BICYCLE DRIVER	100	0	50	0	50	0	0	39
OTHER/UNKNOWN	80	20	40	20	20	20	0	28
AVERAGE	64	36	45	10	19	24	2	39

The most notable change in demographics of vehicular fatalities from fiscal year 1989-90 was a decrease in the percentage of auto drivers who were black, from 36% in 1989-90 to 0 in 1990-91. The percentage of auto driver fatalities who were Asian increased from 7% of the total in 1989-90 to 19% in 1990-91. Blacks were more heavily represented among pedestrian fatalities during 1990-91 (22%) than they were during 1989-90 (8%).

RACE OF VEHICULAR DEATH VICTIMS
FY 1990-91

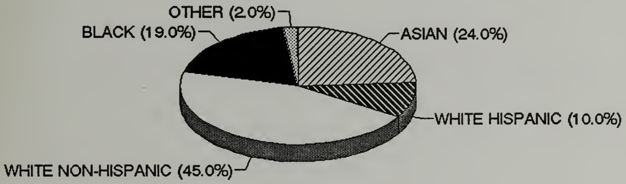


Figure 17.

SUICIDES

The determination of suicide as a manner of death represents the summation of scene investigation, including a review of psychological state, autopsy, pathology, toxicology and, frequently, other investigation. To the best of our knowledge, ours is the only Medical Examiner's Office routinely performing toxicology testing on multiple organs and/or body fluids in order to evaluate the metabolic status of a drug or drugs.

Realizing the immense emotional impact on family, the diagnosis of suicide is never made lightly, and always represents a decision made on the basis of data sufficient to defend that decision in a court of law, if necessary. Should these data be inconclusive, the victim automatically gets the benefit of the doubt.

Suicide takes a tremendous toll of our young people. The relative number jumping from the Golden Gate bridge would not seem to warrant the publicity assigned them as compared to the evident need for help for individuals using other methods.

To help understand the problem, and hopefully, to aid in reduction of suicides, this office has supported suicide prevention and research programs for many years. It is hoped that this work will help to reduce this needless loss.

The majority of these deaths are situational reactions, and, if given momentary trained support, are potentially preventable.

SUICIDAL DEATHS

One hundred and fifty-five deaths were ruled to have been due to suicide during the 1990-91 fiscal year. However, the one motor vehicle death which was ruled to be by suicide is not included in the following tabulations; it was included under vehicular deaths. The number of individuals dying by each method of suicide are presented in Figure 18, page 41, and Table XIX, page 42, and the percentages of all suicidal deaths by type are indicated in Table XIX, page 42. Of those individuals dying by suicide who were tested for alcohol and drugs (i.e. in the hospital less than 24 hours), less than 50%, on the average, had positive blood tests for alcohol and/or drugs.

Abuse Drug Involvement (Table XX, page 42)

The abuse drugs seen most frequently in suicidal deaths were cocaine (7 cases) and amphetamines (3 cases). Heroin (measured as morphine) was not seen in any suicidal death during 1990-91. This contrasts with 15 cases of suicide with heroin present in 1988-89 and 8 cases in 1989-90. Amphetamines were not found in any cases of suicidal deaths in 1988-89; they were found in 5 cases during 1989-90. Abuse drugs were associated more frequently with deaths caused by jumping from buildings (3 cases) than with any other mode of suicide except for drug overdose. Abuse drugs may have played a role in suicidal deaths by firearms (2 cases), and hanging (1 case).

Racial Distribution (Table XXI and Figure 19, page 43)

Deaths from suicide occurred most frequently in whites (82% of total suicides). This was also true for all modes of suicide separately. The white racial group has been divided into Hispanic and non-Hispanic in this tabulation. It can be seen that the white Hispanic group was involved in only 3% of all suicides but in 8% of all suicides by hanging while white non-Hispanics, who were involved in 79% of all suicides, were only involved in 52% of suicides by deaths by hanging. The mode of hanging was used more frequently by Asians (32%) than would have been expected by the overall percentage of suicides by Asians (11%).

Age Distribution (Table XXII, p. 44, Table XXIII, p. 45 and Figure 20, p. 45)

There were no deaths by suicide in the 0-16 year age group during this fiscal year. There were 2 suicides in the 17-19 year age group, as compared to 1 in 1989-90. There was a 75% increase in the number of suicides in the 60-89 year age group (from 24 to 42 such deaths) as compared to the previous fiscal year with a more than 3-fold increase in the number of suicide deaths in the 70-79 year age group (from 6 to 19!). Also, there was more than a doubling in the number of suicides in the 50-59 year age group, from 12 in 1989-90 to 29 in 1990-91. The 30-39 year age group has the highest percentage of suicides of any age group with deaths from jumps from the Golden Gate bridge being particularly prevalent in this age group. Death by firearms appears to be the mode of suicide used most frequently by older adults with 29% of the deaths of those over age 60 being due to gunshot.

Distribution by Sex (Table XXIV, page 46)

Males were more likely than females to commit suicide in 1990-91 (78% male, 22% female). However, equal numbers of males and females committed suicide by drugs.

SUICIDES

Suicides are self-inflicted deaths. In San Francisco, the 154 suicides which are being tabulated account for 10% of the Medical Examiner death investigations for the fiscal year of 1990-91.

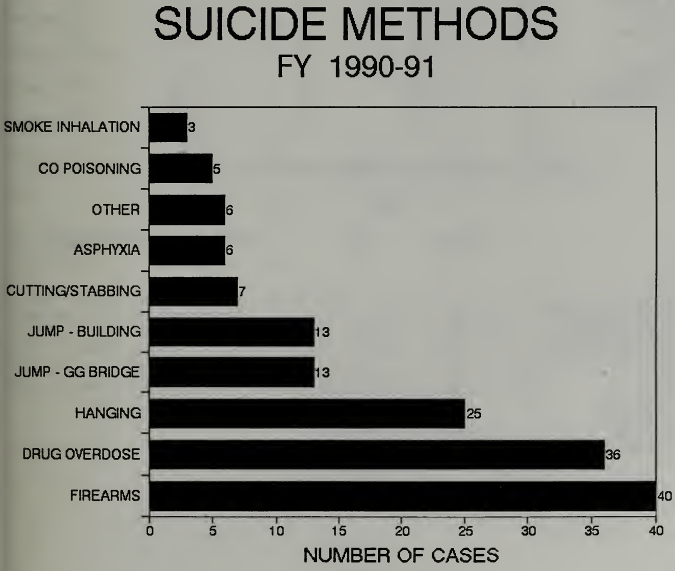


Figure 18.

TABLE XIX. SUICIDAL DEATHS BY MODE

Drug and Alcohol Involvement

METHOD	NUMBER	% OF TOTAL SUICIDES	% WITH ALCOHOL	AVE. ALC. CONC.(g%)	% WITH DRUGS
FIREARMS	40	26.0	38	0.19%	16
DRUG OVERDOSE	36	23.4	31	0.17%	-
HANGING	25	16.2	30	0.10%	28
JUMP-GG BRIDGE	13	8.4	0	-	0
CO POISONING	5	3.2	40	0.11%	0
JUMP-BUILDING	13	8.4	23	0.12%	36
ASPHYXIA/ SUFFOCATION	6	3.9	50	0.17%	50
CUTTING/STABBING	7	4.5	29	0.06%	14
SMOKE INHALATION	3	1.9	33	0.08%	0
OTHER	6	3.9	20	0.03%	20

TABLE XX. ABUSE DRUGS PRESENT IN SUICIDAL DEATHS

	Drugs			
Situation	Cocaine	PCP	Morphine	Amphetamines
ASPHYXIA/SUFFOCATION	0	0	0	0
AUTO/CO POISONING	0	0	0	0
CUTTING/STABBING	0	0	0	0
FIREARMS	2	0	0	0
HANGING	1	0	0	0
JUMP-BUILDING	2	0	0	1
JUMP-GG BRIDGE	0	0	0	0
DRUG OVERDOSE	2	0	0	2
SMOKE INHALATION	0	0	0	0
OTHER	0	0	0	0
TOTALS	7	0	0	3

TABLE XXI. SUICIDE METHODS BY RACE

	Race					
Method	W-NH	W-H	B-NH	Asian	Other	Total
Asphyxia/Strang.	6 (100%)	0	0	0	0	6
CO Poisoning	5 (100%)	0	0	0	0	5
Cutting/Stabbing	5 (71%)	0	0	1 (14%)	1 (14%)	7
Firearms	36 (90%)	0	3 (8%)	1 (2%)	0	40
Hanging	13 (52%)	2 (8%)	2 (8%)	8 (32%)	0	25
Jump-Building	9 (69%)	0	2 (15%)	2 (15%)	0	13
Jump-GG Brdg	11 (85%)	0	0	2 (15%)	0	13
Drug O.D.	30 (83%)	2 (6%)	1 (3%)	2 (6%)	1 (3%)	36
Smoke Inhalation	2 (67%)	0	1 (33%)	0	0 (33%)	3
Other	4 (67%)	1 (17%)	0	1 (17%)		6
TOTALS (NO.)	121	5	9	17	2	154
% OF TOTALS	79%	3%	6%	11%	1%	

* Row percentages refer to percentages by race for each method. These can be compared to total percentages for each race to see whether a method is more or less prevalent in a racial group. For instance, suicides by hanging appear to occur more frequently in Asians (32%) than the general involvement of Asians in suicides (11%), while deaths by hanging in white/non-Hispanics (52%) occur less frequently than all suicides in white/non-Hispanics (79%).

RACE OF SUICIDE VICTIMS
FY 1990-91

Figure 19.

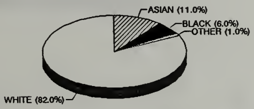


TABLE XXII. SUICIDE METHODS BY AGE

	Age									
Method	13-16	17-19	20-29	30-39	40-49	50-59	60-69	70-79	80-89	90-99
Asphyxia/Suffoc.	0	0	0	1 (17%)	0	2 (33%)	1 (17%)	0	2 (33%)	0
CO Poisoning	0	0	0	0	0	1 (20%)	1 (20%)	2 (40%)	1 (20%)	0
Cutting/Stabbing	0	0	0	2 (29%)	1 (14%)	2 (29%)	1 (14%)	1 (14%)	0	0
Firearms	0	1 (2%)	4 (10%)	8 (20%)	11 (28%)	4 (10%)	6 (15%)	2 (5%)	3 (8%)	1 (2%)
Hanging	0	1 (4%)	6 (24%)	4 (16%)	2 (8%)	6 (24%)	1 (4%)	5 (20%)	0	0
Jump-Building	0	0	3 (23%)	3 (23%)	1 (8%)	2 (15%)	1 (8%)	2 (15%)	1 (14%)	0
Jump-GG Bridge	0	0	3 (23%)	8 (62%)	1 (8%)	1 (8%)	0	0	0	0
Smoke Inhalation	0	0	0	1 (33%)	1 (33%)	1 (33%)	0	0	0	0
Drug Overdose	0	0	2 (6%)	9 (25%)	6 (17%)	9 (25%)	3 (8%)	6 (17%)	1 (3%)	0
Other	0	0	2 (33%)	1 (17%)	0	1 (17%)	1 (17%)	1 (17%)	0	0
TOTAL NO.	0	2	20	37	23	29	15	19	8	1
% OF TOTAL		1%	13%	24%	15%	19%	10%	12%	5%	0.6%

* Row percents refer to percentage by age range for each method. These can be compared to total percentages for each age range to see if a method is more or less prevalent in an age group. For example, hanging appears to occur more frequently in the 20-29 years of age group (24%) than the general involvement of this age group in suicides (13%) while deaths by drug overdose in the 20-29 year age group (6%) occur less frequently than all suicides in this age group (13%).

SUICIDES

TABLE XXIII. AGE RANGES - COMPARISON BY YEAR

Age Range	'83-'84	'84-'85	'85-'86	'86-'87	'87-'88	'88-'89	'89-'90	'90-'91
0 - 19	4	7	7	2	6	3	1	2
20 - 29	34	27	29	22	36	30	18	20
30 - 39	44	37	46	45	28	33	39	37
40 - 49	21	25	18	28	24	28	30	23
50 - 59	26	20	18	30	23	22	12	29
60 - 69	20	21	19	20	19	19	11	15
70 - 79	18	15	12	12	17	21	6	19
80 - 89	12	4	10	9	5	11	7	8
90 - 99	3	2	2	3	4	3	4	1
Unknown	0	0	0	0	0	1	0	0

SUICIDE VICTIMS BY AGE

FY 1990-91

Figure 20.

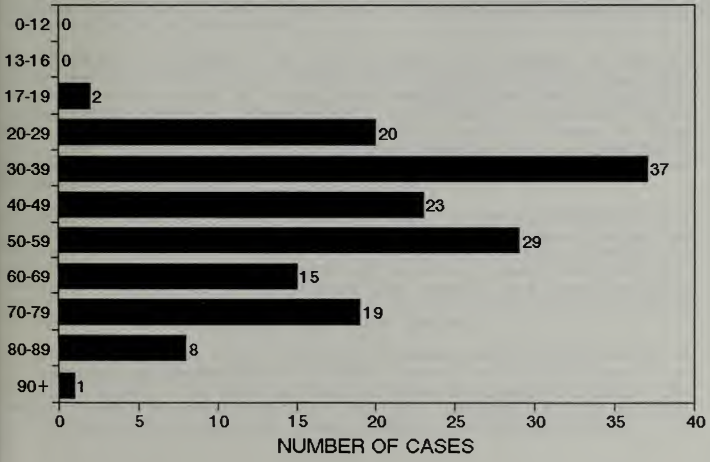


TABLE XXIV. SUICIDE METHODS BY SEX

	Sex	
Method	Male	Female
Asphyxia/Strangulation	5 (83%)	1 (17%)
CO Poisoning	5 (100%)	0 (0%)
Cutting/Stabbing	6 (86%)	1 (14%)
Firearms	37 (92%)	3 (8%)
Hanging	19 (76%)	6 (24%)
Jump-Building	11 (85%)	2 (15%)
Jump-GG Bridge	9 (69%)	4 (31%)
Smoke Inhalation	3 (100%)	0 (0%)
Drug Overdose	18 (50%)	18 (50%)
Other	6 (77%)	0 (0%)
TOTALS	101 (77%)	27 (23%)

* Row percents refer to percentages by sex for each mode. These can be compared to total percentages for each sex to see whether a mode is more or less prevalent in one sex. For example, deaths by firearms appear to occur more frequently in males (92%) than the general involvement of males in suicides (77%), while females die by cutting/stabbing less frequently (14%) than all suicides in females (23%).

HOMICIDE

Homicide is the killing of one human being by another. Murder is the unlawful killing of a human being with malice. The following data do not differentiate homicide as to whether it was justifiable, accidental, or murder. Such distinctions are the proper function of the judicial system and are not the responsibility or function of this office.

Any judicial system which deals with crimes involving death requires a well-trained staff and well-equipped Medical Examiner's Office which can and will interpret forensic findings in an unbiased, fair manner. Their investigation must be intense, accurate and rapid enough so that charges may be pursued or dismissed without unfairly affecting an individual's constitutional rights. This is the purpose of this office.

The proper evaluation and investigation of a homicide begins, naturally, at the scene. In the majority of cases, a staff member of this office (either the Investigator, Administrative Coroner, or Medical Examiner), determines whether a death is potentially a homicide. It has been well-documented that, if such a determination is made by an individual inexperienced or untrained in death investigation, his opinion will be wrong in 50% of the cases. Such a person is very apt to miss the subtle homicide and is more inclined to miscall a natural or accidental death as homicide, resulting in false arrest, false accusations, needless expenditure of public funds, waste of investigative time and delay in the investigation of other deaths.

The Investigator responds to the scene of death and determines whether the Police Homicide Detail will be called. When homicide is obvious, the Investigator responds as part of a team (other members include homicide investigators, photographers and criminologists). This office is responsible for the body, identification, inquiry into circumstances, manner and means of death (Gov. Code 27491.2). In addition to the scene investigation, the Investigator is responsible for recovering property, locating and notifying next of kin, and preparing a written summary of his investigation.

In about one-third to one-half of all homicides, a forensic pathologist will respond to the scene and aid in the investigation. The subsequent autopsy may also use photography, fluoroscopy, X-ray, angiography and other techniques to establish and define the number, nature and severity of wounds, to obtain evidence (i.e. bullets) and to prepare an official report. This report, including chemistry, serology and toxicology results, is used as part of the prosecution or defense of the case in the formal judicial hearing.

Pertaining to criminal trial, our judicial system requires identification of an individual and presentation of evidence, usually by virtue of expert testimony, relative to the cause of death or trauma associated with death. The Medical Examiner's Office identifies the body, frequently relying on local police, CII, or FBI fingerprints. Expert forensic testimony is given by

the Forensic Pathologist from this office. In addition, the Forensic Toxicologist is frequently called upon to testify on the significance and effect of various drug levels, a matter of great importance when dealing with the concept of diminished capacity.

Of minor, but increasing importance, is the fact we are seeing more homicide and trauma cases transferred into the County for medical therapy because of San Francisco's excellent and advanced medical facilities. Should these individuals die, the autopsy and court testimony are done by this office.

HOMICIDE DEATHS

One hundred and four deaths were ruled to have been due to homicide during the 1990-91 fiscal year. The number of individuals dying by each manner of death by homicide are indicated in Figure 21, page 50 and Table XXV, page 51, and the percentage of all homicides represented by specific method used are indicated in Table XXV, page 51. The total number of non-vehicular homicides decreased 6% and the number of homicide deaths by firearms decreased 18%, from 61 to 50 cases. Of the homicide victims tested for alcohol and drugs (i.e. those in the hospital for less than 24 hours), a large percentage had positive blood alcohol levels as well as having drugs present. The percent of homicide victims with positive blood tests for drugs varied with the method of homicide with 31% of those dying by firearms and 62% of those dying from stabbing having drugs present.

Abuse Drug Involvement (Table XXVI, page 51)

Cocaine was the abuse drug seen most frequently in homicide victims. It was found in 22 homicide cases or 25% (22/88) of all non-vehicular homicides. Cocaine was associated most strongly with deaths by gunshot wound, with 12 of the 22 cases with cocaine present (55%) being deaths due to gunshot wound. Stabbing was the homicide method which was associated with drugs next most frequently to gunshot wound. Cocaine was present in 8 cases, PCP was present in 1 case and heroin was present in 2 cases who died by stabbing.

Racial Distribution (Table XXVII and Figure 22, page 52)

Overall, deaths by homicide occurred most frequently in blacks (41%) followed closely in frequency by whites (40%). Deaths by firearms occurred with a greater frequency in blacks (58%) than in either whites (28%) or Asians (10%). Deaths by stabbing occurred much more frequently in white/Hispanics (36% of all stabbing deaths) than would have been predicted by the overall involvement of white/Hispanics in homicides of all types (13%). Vehicular deaths occurred more frequently in Asians and less frequently in blacks than would be predicted based on the percentages of these racial groups involved in all types of homicides.

Age Distribution (Fig. 23, p. 53, Tables XVIII and XXIX, p. 54 and Table XXXI, p. 55)

There were 13 homicides in the 0-19 year age group. More than half of these homicides were due to firearms. The peak occurrence of deaths due to firearms and stabbing was in the 20-29 year age group. Of deaths due to firearms, 76% were in the 20-49 year age group as were 88% of the stabbing deaths. There were 10 homicides in individuals over the age of 60 during 1990-91. As can be seen from Table XXXI, the mean age of homicide victims varies with mode, with the highest mean age being in deaths due to asphyxia and the lowest mean age being in deaths due to stabbing.

Distribution by Sex (Table XXX, page 55)

Males were more than five times as likely to be homicide victims as females. This male predominance was even more pronounced for deaths due to head trauma where all of the victims were male.

NON-VEHICULAR HOMICIDES

Homicides are those deaths caused by another person, generally resulting in murder and manslaughter charges. In San Francisco, 88 non-vehicular homicides occurred in 1990-91, accounting for 6% of the total Medical Examiner investigations.

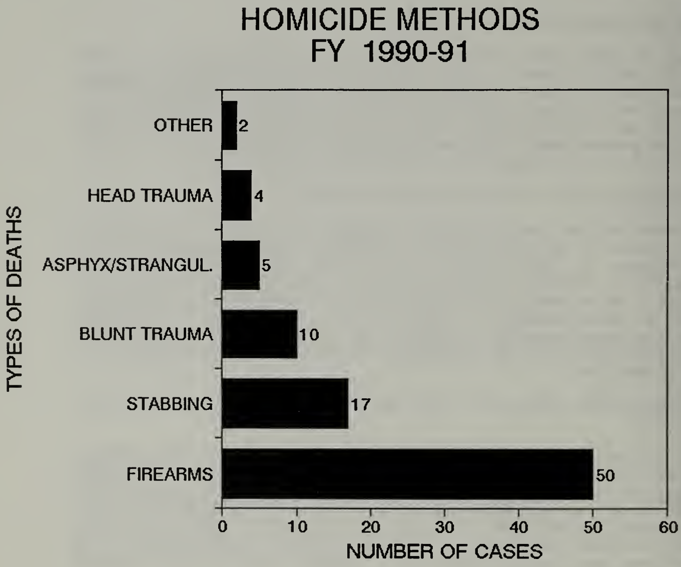


Figure 21.

TABLE XXV. HOMICIDAL DEATHS BY MODE

Drug and Alcohol Involvement

METHOD	NUMBER	% OF TOTAL HOMICIDES	% WITH ALCOHOL*	AVE. ALC. CONC. (g%)	% WITH DRUGS**
FIREARMS	50	48	37	0.14%	31
STABBING	17	16	71	0.15%	63
VEHICULAR	16	15	20	0.27%	7
BLUNT TRAUMA	10	10	50	0.18%	20
ASPHYXIA/ STRANGULATION	5	5	60	0.22%	0
HEAD TRAUMA	4	4	100	0.15%	0
OTHER	2	2	50	0.72%	0

* Refers to percentage of victims (of those tested) with positive blood ethyl alcohol concentrations

** Refers to percentage of victims (of those tested) with positive blood tests for abuse drugs.

TABLE XXVI. DRUGS PRESENT IN NON-VEHICULAR HOMICIDAL DEATHS

	Drugs			
Situation	Cocaine	PCP	Heroin	Amphetamines
ASPHYXIA/STRANGULATION	0	0	0	0
MULTIPLE TRAUM. INJURIES	2	0	0	0
GUNSHOT WOUND	12	1	0	2
STABBING	8	1	2	0
OTHER	0	0	0	0
TOTALS	22	2	2	2

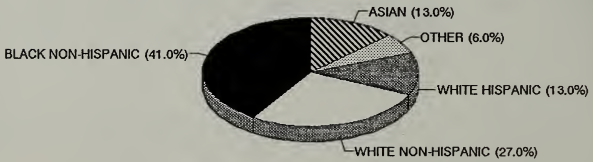
TABLE XVII. HOMICIDE METHODS BY RACE

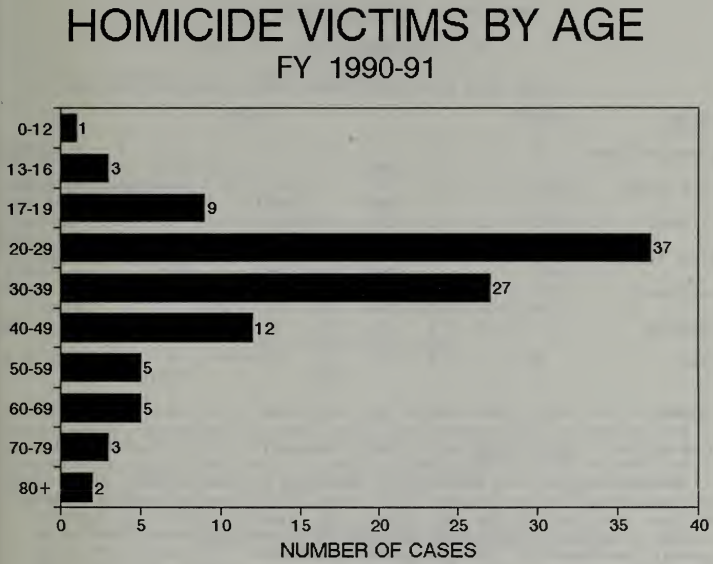
Method	Race					Total
	W-NH	W-H	B-NH	Asian	Other	
Asphyxia/Strang.	3 (60%)	0	2 (40%)	0	0	5
Head Trauma	2 (50%)	2 (50%)	0	0	0	4
Vehicular	5 (31%)	0	3 (19%)	6 (38%)	2 (12%)	16
Firearms	10 (20%)	4 (8%)	29 (58%)	5 (10%)	2 (4%)	50
Stabbing	3 (18%)	6 (35%)	6 (35%)	1 (6%)	1 (6%)	17
Blunt Trauma	4 (40%)	1 (10%)	3 (30%)	2 (20%)	0	10
Other	1 (50%)	0	0 (50%)	0	1	2
TOTALS	28	13	43	14	6	104
% OF TOTAL	27%	13%	41%	13%	6%	

* Row percentages refer to percentages by race for each method. These can be compared to total percentages for each race to see whether a method is more or less prevalent in a racial group. For instance, death by stabbing appears to occur more frequently in white/Hispanics (35%) than the general involvement of white/Hispanics in homicides (13%) while deaths due to stabbing appear to occur less frequently in Asians (6%) than all homicides in Asians (13%).

RACE OF HOMICIDE VICTIMS
FY 1990-91

Figure 22.





HOMICIDE VICTIMS BY AGE
FY 1990-91

Figure 23.

TABLE XVIII. HOMICIDE METHODS BY AGE

Age

Method	0-12	13-16	17-19	20-29	30-39	40-49	50-59	60-69	70-79	80+
Asphyxia/Strang.	0	0	0	1 (20%)	0	0	1 (20%)	2 (40%)	1 (20%)	0
Head Trauma	0	0	0	2 (50%)	0	1 (25%)	0	0	1 (25%)	0
Firearms	0	2 (4%)	5 (10%)	18 (36%)	15 (30%)	5 (10%)	2 (4%)	1 (2%)	1 (2%)	1 (2%)
Blunt Trauma	0	0	0	2 (20%)	5 (50%)	2 (20%)	0	1 (10%)	0	0
Vehicular	1 (6%)	1 (6%)	2 (12%)	6 (38%)	1 (6%)	2 (12%)	2 (12%)	0	0	1 (6%)
Stabbing	0	0	2 (12%)	8 (47%)	5 (29%)	2 (12%)	0	0	0	0
Other	0	0	0	0	1 (50%)	0	0	1 (50%)	0	0
TOTALS	1	3	9	37	27	12	5	5	3	2
% OF TOTALS	(1%)	(3%)	(9%)	(36%)	(26%)	(12%)	(5%)	(5%)	(3%)	(2%)

* Row percents refer to percentage by age range for each method. These can be compared to total percentages for each age range to see if a method is more or less prevalent in an age group. For example, deaths by asphyxia/strangulation occur more frequently in the 50-79 year age group (80%) than the general involvement of this age group in homicides (13%) while such deaths occur less frequently in the 20-39 years of age group (20%) than all homicides in this age group (62%).

TABLE XXIX. HOMICIDE VICTIMS AGE RANGES - COMPARISON BY YEAR

YEAR

Age range	'83-'84	'84-'85	'85-'86	'86-'87	'87-'88	'88-'89	'89-'90	'90-'91
0 - 19	8	8	9	8	16	18	16	13
20 - 29	21	30	40	28	28	31	28	37
30 - 39	27	22	27	27	41	28	28	27
40 - 49	16	10	18	18	12	15	15	12
50 - 59	4	10	7	11	13	9	6	5
60 - 69	6	5	4	8	8	4	5	5
70 and above	3	10	15	10	5	2	6	5

TABLE XXX. HOMICIDE METHODS BY SEX

Method	Sex Male	 Female
Asphyxia/Strangulation	4 (80%)	1 (20%)
Head Trauma	4 (100%)	0 (0%)
Firearms	46 (92%)	4 (8%)
Mult. Traum. Inj.	8 (80%)	2 (20%)
Vehicular	11 (69%)	5 (31%)
Stabbing	14 (82%)	3 (18%)
Other	1 (50%)	1 (50%)
TOTALS	88	16
% OF TOTALS	(85%)	(15%)

* Row percents refer to percentages by sex for each mode. These can be compared to total percentages for each sex to see whether a mode is more or less prevalent in one sex. For example, deaths from head trauma occur more frequently in males (100%) than the general involvement of males in homicides (85%), while deaths from head trauma in females (0%) occur less frequently than all homicides in females (15%).

TABLE XXXI. MEAN AGE FOR HOMICIDE VICTIMS BY METHOD AND SEX (Age in Years)

Method	Male	Female
Asphyxia/Strangulation	66	48
Head Trauma	44	-
Firearms	33	32
Blunt Trauma	36	39
Vehicular	30	30
Stabbing	29	26
Other	65	31

The highest mean age for both males and females was seen in victims of asphyxia/strangulation while the lowest mean age for both was seen in deaths by stabbing.

PATHOLOGY

In the Pathology Department, tissue and body fluid samples taken at autopsy are prepared for microscopic study, histochemically stained, or analyzed for chemical constituents. Cardiac pacemakers or other mechanical life-support devices are examined for any defect. Smears or "wet-mounts" are examined for spermatozoa, bacteria, or tuberculosis. Bacteriologic cultures may be taken. However, if pathogens are grown, they are usually sent to the Department of Public Health (State or local) for further identification. If indicated, "soft" X-rays or histochemical tests are done to establish entrance or exit gunshot wounds. New research techniques, such as methods of obtaining fingerprints from the skin of a victim, are developed here also.

MONTHLY FIGURES

1990-1991

PATHOLOGY*

YEAR	TOTAL MED-EXAM CASES	CASES REFERRED TO PATHOLOGIST	NO. OF ORGANS SUBMITTED	NO. OF SECTIONS TAKEN	HISTO PATHOLOGIC SLIDES MADE	SPECIAL STAINS **	BLOOD GROUPINGS ***	OTHER DETERM TIONS
1990								
JUL	127	110	747	1704	824	176	28	277
AUG	129	100	670	1495	740	78	30	388
SEP	110	87	584	1314	666	77	28	361
OCT	137	105	673	1464	709	135	52	500
NOV	111	87	722	1610	783	55	30	245
DEC	139	88	660	1196	581	96	16	279
1991								
JAN	152	115	486	1170	539	96	34	456
FEB	141	96	791	1870	916	92	46	416
MAR	114	83	489	1271	608	185	6	459
APR	131	99	479	1148	601	45	40	531
MAY	138	103	550	1313	709	124	30	356
JUN	108	78	501	1292	677	106	38	214
TOTALS	1537	1151	7352	16847	8353	1265	378	4482
Percent Change From 89-90	-2%	+6%	+57%	+58%	+49%	+51%	+61%	-1%

* These figures do not reflect photography, forensic radiology, or material prepared for teaching forensic pathology

** Includes smears examined for bacteria and spermatozoa

*** ABO and Anti-Rh

**** Blood, urine, water, evidence for: hematology, biochemistry, urinalysis, bacteriology, serology, "Sickledix," etc.

TOXICOLOGY

Toxicology is the study of the interaction of foreign compounds, such as drugs, with living organisms (e.g. people). It involves knowing something of the nature of that interaction, how the foreign compounds break down (that is, how they are metabolized), and what effects they have on the health and behavior of the organism.

All of this information is vital to the role that toxicology plays in determining the cause of death, as well as in evaluating the significance of chemicals found in the living.

Generated within the Toxicology Department is information on samples from Medical Examiner's cases as well as from suspects in criminal cases (e.g.. homicides, driving under the influence, probation failure, (H & S 11550), assaults) and other persons to be tested at the request of various law enforcement agencies. The data obtained in these cases enable the toxicologist to assist in interpreting the behavior of the suspects involved, to advise the District Attorney, the Public Defender, the City Attorney, Police Department, the California Highway Patrol, and other agencies, and to give expert testimony in court as necessary in such cases as to the effect of drugs in the case. This application of toxicological facts to legal problems is Forensic Toxicology.

The Toxicology Department also performs analyses on samples submitted by the Police and Fire Departments in connection with the recruitment programs and other personnel requirements. The results in some cases are presented to the respective commission in official hearings.

Toxicological facts are determined through tests performed on biological samples (e.g. blood, urine, gastric contents, liver, etc.) taken at the time of autopsy or from living persons. The samples are subjected to a series of chemical manipulations designed to extract any drugs or other physiologically active compounds that may be present. The subsequent extracts are then examined by equipment set up to detect, accurately identify, and quantitate any materials that may be present. These determinations must be of unquestionable accuracy and as specific as scientifically possible, and they must be able to stand up to review by any other qualified laboratory in the nation.

The analytical methods most commonly used in the toxicological studies are gas and thin layer chromatography; ultraviolet, visible, and fluorescence spectrophotometry; and immunoassay techniques. Advanced techniques, such as mass spectrometry and HPLC (High Performance Liquid Chromatography) are used as necessary for confirmation of difficult samples. These precise and sophisticated methods require the use of advanced laboratory apparatus and highly trained personnel.

Levels of drugs in two or more body compartments (one of which is invariably blood) are routinely determined in order to answer the question of whether the drug use is acute or chronic. This approach is of the utmost importance in determining the time of ingestion and whether or not the intent of the ingestion was suicide.

The range of drugs available to the public is extremely wide, and the nature and type of compounds involved are highly variable. The methodologies necessary to conduct toxicological analyses have to be similarly wide-ranging and also continually expanded in order to keep up with the manufacture of new drugs, both legal and illegal. This is an important aspect of the Toxicology Department's work, often requiring extensive research. So, too, does the identification of "street-manufactured" compounds which are sometimes found in post-mortem samples. Also, with many drugs being compounded to have physiologic effects at very low doses, detection in body fluids is often extremely difficult.

The most common drugs in the community are alcohol and prescription items. However, illegal, or "street", drugs (especially morphine-type alkaloids [e.g. heroin], cocaine, and amphetamines) represent a very significant percentage of the compounds actually found in the cases presented to the Toxicology Department. Less commonly used drugs, industrial materials, certain gases, and various other foreign compounds have also been detected.

TOXICOLOGY
MEDICAL EXAMINER - CORONER'S CASES

SAN FRANCISCO CITY AND COUNTY
July 1990 - June 1991

Incidence of drugs and other physiologically active material detected

The compounds listed are not necessarily the cause of death nor even a contributing factor. They are the toxic agents that were found to be present, either singly or in combination, in Medical Examiner's cases.

ABUSE DRUGS

Cocaine	108
Benzoylecgonine	108*
Morphine-type alkaloids	94
Codeine	56
Methamphetamine	23
Amphetamine	20
Phencyclidine (PCP)	5
Methylenedioxyamphetamine	2

ANTI-DEPRESSANTS

Amitriptyline (Elavil)	24
Nortriptyline (Aventyl)	17
Desipramine (Norpramin)	10
Imipramine (Tofranil)	7
Doxepin (Sinequan)	3
Fluoxetine (Prozac)	1

*Benzoylecgonine is not a drug of abuse. It is a metabolite of cocaine and is generally present when cocaine is detected. In some cases, benzoylecgonine, but not cocaine, was found which indicated that there had been some exposure to cocaine.

ANALGESICS - NARCOTIC

Methadone	30
Methadone Metabolite	10
Propoxyphene (Darvon)	8
Norpropoxyphene	3
Meperidine	3
Hydrocodone	2
Pentazocine	1
Oxycodone	1

ANALGESICS - NON-NARCOTIC

Acetaminophen	9
Salicylates	3

CARDIAC DRUGS

Lidocaine	79
Propranolol (Inderal)	1
Quinidine	1

ANTIEMETICS

Dimenhydrinate (Dramamine)	1

SEDATIVE-HYPNOTICS
Barbiturates

Secobarbital	7
Pentobarbital	4
Phenobarbital	4
Butalbital	1

SEDATIVE-HYPNOTICS
Non-Barbiturates

Chloral Hydrate metabolite	1
Ethchlorvynol	1

ANTIHISTAMINES

Diphenhydramine (Benadryl)	15
Promethazine (Phenergan)	2
Doxylamine	2
Brompheniramine	1

DECONGESTANTS

Phenylpropanolamine	3

Drugs Detected, Continued

ANALEPTICS

Caffeine	7

ANTICONVULSANTS

Diphenylhydantoin (Dilantin)	6
Clonazepam (Klonopin)	3
Mephenytoin (Mesantoin)	1
Valproic Acid (Depakene)	1

ANTIDIABETIC AGENTS

Insulin	1

ANTIPSYCHOTIC AGENTS

Chlorpromazine (Thorazine)	1
Loxapine (Loxitane)	1

MISCELLANEOUS

Carbon Monoxide	20
Acetone	9
Iso-Propyl Alcohol	1

BRONCHODILATORS

Ephedrine	12
Theophylline	2

MUSCLE RELAXANTS

Orphenadrine	1

ANTI-ANXIETY AGENTS

Diazepam (Valium)	34
Nordiazepam	32
Chlordiazepoxide (Librium)	14
Alprazolam (Xanax)	3
N-Desalkylflurazepam	3
Lorazepam (Ativan)	2
Triazolam (Halcion)	1
Flurazepam (Dalmane)	1
Temazepam (Restoril)	1
Meprobamate (Miltown)	1
Hydroxyzine (Atarax)	1

TOXICOLOGY

MEDICAL EXAMINER'S CASES

SAN FRANCISCO COUNTY
July 1990 - June 1991

Year/ Month	No. of Cases Referred to Toxicology	No. of Specimens Received	No. of Tests Performed	No. of Tests Per Case	Alcohol Tested	Pos.	% Pos.
1990							
JUL	135	1069	1045	7.7	129	46	35.7
AUG	129	1036	955	7.4	114	27	23.7
SEP	109	869	841	7.7	106	23	21.7
OCT	139	1,147	1100	7.9	128	23	18.0
NOV	110	917	864	7.9	105	23	21.9
DEC	133	1,070	981	7.4	127	24	18.9
1991							
JAN	155	1,330	1,121	7.2	143	27	18.9
FEB	138	1,097	961	7.0	120	22	18.3
MAR	113	909	809	7.2	107	22	20.1
APR	137	1,110	982	7.2	132	27	20.5
MAY	139	1,103	974	7.0	127	26	20.5
JUN	103	829	762	7.4	96	21	21.9
TOTAL	1,540	12,486	11,395	7.4	1,434	311	21.7

TOXICOLOGY

FORENSIC TOXICOLOGY CASES
JULY 1990 - JUNE 1991

Cases in which specimens were referred to the Medical Examiner's Toxicology Laboratory for forensic toxicological examination generally were criminal cases in which the presence of drugs was suspected either in the victim or suspect of the crime. Testing of 11550, probation, DUI, management control, out-of-county and other miscellaneous cases is included in this tabulation.

YEAR/MONTH	No. Cases Referred to Toxicology	No. of Specimens Received	No. Of Tests Performed
1990			
JUL	311	409	1,730
AUG	414	580	2,311
SEP	349	457	1,871
OCT	374	474	2,015
NOV	398	555	2,216
DEC	322	434	1,779
1990			
JAN	551	701	3,146
FEB	404	526	2,435
MAR	433	591	2,509
APR	396	559	2,287
MAY	372	461	2,127
JUN	407	569	2,411
TOTAL	4,731	6,316	26,837

TOXICOLOGY

FORENSIC TOXICOLOGY CASES
JULY 1990 - JUNE 1991

Incidence of drugs detected in all cases submitted to the Medical Examiner - Coroner's Office Toxicology Laboratory for forensic toxicological examination.

The samples in which these compounds were found to be present, either singly or in combination, were generally obtained from either suspects or victims in criminal cases, probationers or via management control investigatons.

	TYPE OF CASE			
Drug	11550	DUI	Probation	Other*
Ethyl alcohol	1	299	-	47
Cocaine	219	50	516	17
Benzoylecgonine	219	52	677	19
Phencyclidine (PCP)	52	24	61	-
Morphine-type alkaloids	110	14	27	1
Methamphetamine	42	17	12	4
Amphetamine	38	11	7	4
Codeine	7	13	5	2
Methadone	1	4	-	1
Methadone metabolite	1	3	-	-
Ephedrine	1	3	10	10
Phenylpropanolamine	-	1	2	5
Delta-9-Tetrahydro-cannabinol	-	9	51	1
11-Nor-Delta-9-THC-Carboxylic Acid	-	1	90	2
Diazepam	-	4	-	4
Nordiazepam	-	3	-	1
Lidocaine	-	2	-	1
Theophylline	-	2	-	-
MDMA	-	2	-	-
Carisoprodol	-	1	-	-
Diltiazem	-	1	-	-
Diphenylhydantoin	-	1	-	-
Meprobamate	-	1	-	-
Nicotine metabolite	-	1	-	-
Phenobarbital	-	1	-	-
Clonazepam	-	1	-	-
Chlordiazepoxide	-	-	-	4
Lorazepam	-	-	-	3
Caffeine	-	-	-	3
Acetone	-	-	-	2
Flunitrazepam	-	-	-	1
iso-Propyl Alcohol	-	-	-	1
Secobarbital	-	-	-	1

* "Other" includes testing of homicide suspects, suspects and victims in other criminal cases, and Sheriff, Police and Fire Department recruits, management controls, out-of-county cases, and other miscellaneous cases.

ABUSE DRUGS

The role of abuse drugs in deaths during the 1990-91 fiscal year is presented in this section. The four abuse drugs most commonly seen in Medical Examiner's cases - cocaine, heroin, amphetamines and PCP - will be examined. The number of cases in which these drugs were found either alone or in combination with other abuse drugs are presented in Table XXXII, page 69. Cocaine was the most frequently observed drug of abuse both where drugs were present alone and when drugs were present in combination.

Distribution by Sex (Table XXXIII, page 70)

In deaths caused by abuse drugs (DC = drug caused) or deaths related to abuse drugs (DR = drug related), where the drugs were present either singly or in combination, 61-100% of the deceased individuals were males, except for deaths related to amphetamines in combination where 33% of the victims were male.

Distribution by Race (Table XXXIII, page 70)

White/Non-Hispanic (W-NH) - In drug-caused deaths where abuse drugs were present either singly or in combination with other abuse drugs, the white non-Hispanic racial group predominated in deaths caused by all four abuse drugs.

Black/Non-Hispanic (B-NH) - In drug-related deaths where abuse drugs were present singly, the black non-Hispanic racial group predominated in deaths where cocaine was present (73%). This racial group was only minimally represented in drug-caused deaths where heroin, amphetamines or PCP was present alone.

White/Hispanic (W-H) - This racial group was most heavily represented in drug-related deaths where heroin was present alone.

Distribution by Age (Table XXXIII, page 70)

In deaths where abuse drugs were present singly, there were some notable differences in mean ages of the victims. Users of PCP (drug-related deaths only) were of a considerably younger mean age (23.0 years) as compared to the mean ages of users of cocaine (drug-caused, 36.3 years) and heroin (drug-related, 42.0 years).

Alcohol Involvement (Table XXXIII, page 70)

The presence of alcohol in the blood of abuse drugs users was most often associated with deaths related to heroin alone (80%) and was least associated with deaths due to amphetamines alone (0%).

Deaths Involving Cocaine (Figure 24, p. 71 and Tables XXXIV and XXXV, p. 73)

Cocaine alone was the cause of death in 18 cases by overdose, a 28% decrease from the previous fiscal year (25 cases). Cocaine alone was also present in 29 non-drug caused deaths (See Table XXXIV) including 5 ruled to be accidental, 3 ruled to be by suicide and 19 ruled to be by homicide. Notably, 16 of these 29 deaths (55%) were due to gunshot or stabbing.

Cocaine in combination with other drugs was the cause of death in 32 cases by overdose, a 32% decrease from 1989-90! Cocaine in combination was also present in 11 non-drug caused deaths (See Table XXXV) including 4 cases ruled to be homicides. Of these 11 deaths, 4 (36%) were due to gunshot or stabbing.

The number of deaths due to cocaine over the last 7 fiscal years is shown in Figure 24. It can be seen that the number of deaths due to cocaine decreased in 1990-91 after a steady increase since 1985-86.

Deaths Involving Heroin (Figure 25, page 74 and Table XXXVI, page 75)

Heroin alone was the cause of death in 20 cases by overdose, a 57% decrease from the preceding fiscal year total of 46 cases. Heroin alone also was present in 2 non-drug caused deaths. The involvement of heroin alone in non-drug caused deaths was very minimal as compared to the involvement of cocaine in this type of death, both in number and means of death.

Heroin in combination with other drugs was the cause of death in 28 cases by overdose, a 57% decrease from the previous fiscal year total of 65 cases. Heroin in combination was present in 3 non-drug caused deaths, 1 of which (33%) was due to stabbing.

The numbers of deaths due to heroin over the last 18 fiscal years are shown in Figure 25, page 74. The number of such deaths for 1990-91 is the lowest seen since 1986-87.

Deaths Involving Amphetamines (Table XXXVII, page 76)

Amphetamines alone were the cause of death in 3 cases by overdose, a 67% decrease over the previous fiscal year. Amphetamines alone were also present in 5 non-drug caused deaths, 2 of which were homicides by gunshot.

Amphetamines in combination with other drugs were the cause of death in 7 cases by overdose, an decrease of 72% over the previous fiscal year! Amphetamines in combination with other drugs were present in 3 non-drug caused deaths, none of them homicides.

TABLE XXXII. ABUSE DRUGS

SAN FRANCISCO MEDICAL EXAMINER-CORONER'S CASES

Abuse Drugs Present Alone

Drug	Drug Caused Deaths	Drug Related Deaths	Role Unclear	Incidental Finding
Cocaine alone	18	30	5	5
Heroin alone	20	2	1	3
Amphetamines alone	3	5	1	0
PCP alone	1	3	0	0

Abuse Drugs Present in Combination with Other Drugs

Drug	Drug Caused Deaths	Drug Related Deaths	Role Unclear	Incidental Finding
Cocaine in combination	32	10	6	4
Heroin in combination	28	3	3	2
Amphetamines in combin.	7	3	2	0
PCP in combination	0	1	0	0

TABLE XXXIII. ABUSE DRUGS

INCIDENCE BY SEX, RACE, AGE, AND ALCOHOL INVOLVEMENT

Drugs Present Singly

	SEX		RACE					
Drug	%M	%F	%W-NH	%W-H	%B-NH	Mean Age	% WITH ALCOHOL	AVE. ALC. CONC (g%)
COCAINE-DC*	61	39	44	17	39	36.3	29	0.15
COCAINE-DR**	87	13	17	7	73	33.4	60	0.17
HEROIN -DC*	85	15	75	20	5	35.8	80	0.19
HEROIN-DR**	100	0	0	50	50	42.0	50	0.06
AMPHET.-DC*	100	0	100	0	0	31.7	0	-
AMPHET.-DR**	100	0	80	0	20	37.6	20	0.05
PCP-DC*	100	0	100	0	0	32.0	100	0.19
PCP-DR**	100	0	0	33	33	23.0	33	0.26

Drugs Present in Combination

	SEX		RACE					
Drug	%M	%F	%W-NH	%W-H	%B-NH	Mean Age	% WITH ALCOHOL	AVE. ALC. CONC (g%)
COCAINE+-DC*	84	16	50	3	34	38.2	44	0.13
COCAINE+-DR**	70	30	30	30	30	29.9	20	0.14
HEROIN+-DC*	71	29	64	4	21	35.3	46	0.17
HEROIN+-DR**	67	33	67	33	0	28.3	0	-
AMPHET+-DC*	86	14	100	0	0	39.0	29	0.11
AMPHET+-DR**	100	0	67	33	0	34.0	0	-
PCP+-DC*				NONE				
PCP+-DR**	0	100	100	0	0	36.0	0	-

* DC = Drug Caused
** DR = Drug Related

DEATHS DUE TO COCAINE BY FISCAL YEAR
DRUG ALONE OR IN COMBINATION

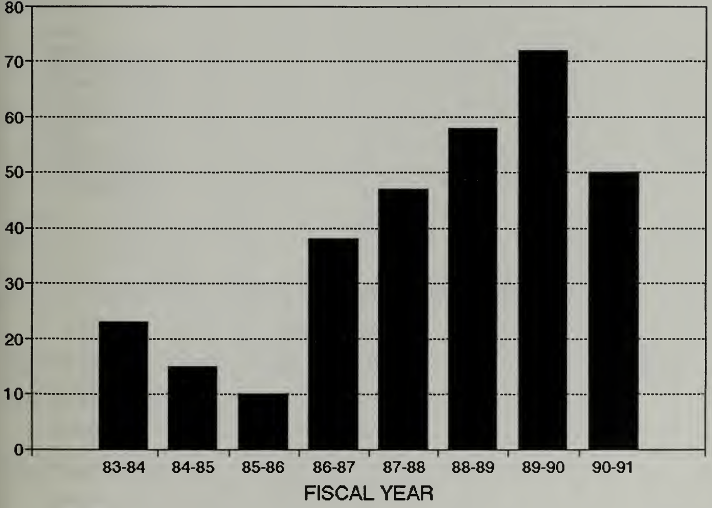


Figure 24.

DEATHS INVOLVING COCAINE

TABLE XXXIV. COCAINE PRESENT ALONE

CAUSE OF DEATH	ACC	SUI	HOM	EQ	UND	TOTALS
	Manner of Death					
Drug Caused Deaths						
OVERDOSE	15	1	0	1	1	18
Drug Related Deaths						
JUMP	0	1	0	0	0	1
HANGING	0	1	0	0	0	1
GUNSHOT WOUND	0	1	10	0	0	11
TRAUMATIC INJ.	0	0	2	0	1	3
STABBING	0	0	6	0	0	6
VEHICULAR	1	0	1	0	0	2
FALLS	3	0	0	0	0	3
ASPIRATION	1	0	0	0	0	1
INTRACEREBRAL HEMORRHAGE	0	0	0	1	0	1
TOTALS	20	4	19	2	2	47

TABLE XXXV. COCAINE IN COMBINATION WITH OTHER DRUGS

CAUSE OF DEATH	ACC	SUI	HOM	EQ	UNK	TOTALS
	Manner of Death					
Drug Caused Deaths						
OVERDOSE	29	1	0	1	1	32
Drug Related Deaths						
HANGING	0	0	0	1	0	1
DROWNING	1	0	0	0	0	1
STABBING	0	0	2	0	0	2
JUMP-BLDG	0	1	0	0	0	1
GUNSHOT WOUND	0	1	2	0	0	3
GI HEMORRHAGE	0	0	0	1	0	1
VIRAL HEPATITIS	1	0	0	0	0	1
SEPSIS	1	0	0	0	0	1
TOTALS	32	3	4	3	1	43

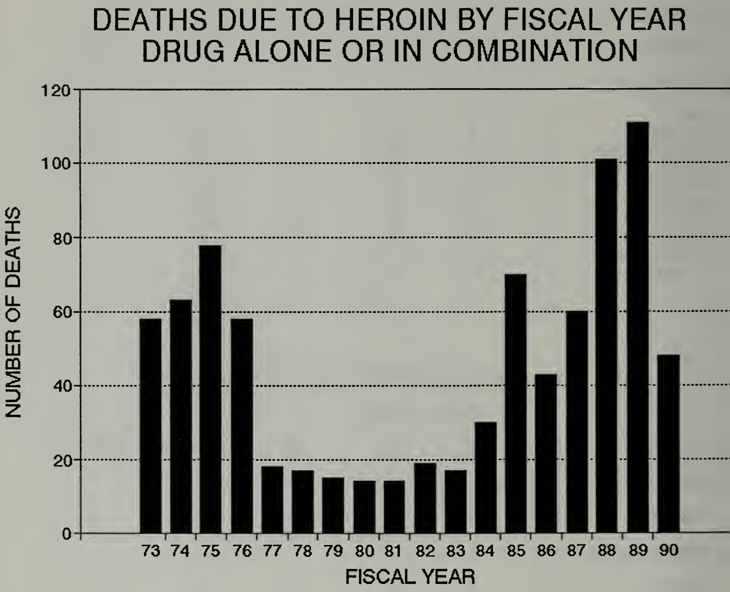

DEATHS DUE TO HEROIN BY FISCAL YEAR
DRUG ALONE OR IN COMBINATION
NUMBER OF DEATHS
120
100
80
60
40
20
0
73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90
FISCAL YEAR

Figure 25.

TABLE XXXVI. DEATHS INVOLVING HEROIN

HEROIN PRESENT ALONE

	Manner of Death					
CAUSE OF DEATH	ACC	SUI	HOM	EQ	UND	TOTALS
Drug Caused Deaths						
OVERDOSE	20	0	0	0	0	20
Drug Related Deaths						
DROWNING	1	0	0	0	0	1
STABBING	0	0	1	0	0	1
TOTALS	21	0	1	0	0	22

HEROIN PRESENT IN COMBINATION WITH OTHER DRUGS

	Manner of Death						
CAUSE OF DEATH	ACC	SUI	HOM	NC	EQUIV	UND	TOTALS
Drug Caused Deaths							
OVERDOSE	27	0	0	0	1	0	28
Drug Related Deaths							
BRONCHOPNEUMIONIA	0	0	0	1	0	0	1
STABBING	0	0	1	0	0	1	1
VIRALHEPATITIS	1	0	0	0	0	0	1
TOTALS	28	0	1	1	1	1	31

TABLE XXXVII. DEATHS INVOLVING AMPHETAMINES

AMPHETAMINES PRESENT ALONE

CAUSE OF DEATH	Manner of Death ACC	SUI	HOM	EQ	UNK	TOTAL
Drug Caused Deaths						
OVERDOSE	3	0	0	0	0	3
Drug Related Deaths						
STRANGULATION	0	0	0	0	1	1
VEHICULAR	1	0	0	0	0	1
GUNSHOT WOUND	0	0	2	0	0	2
JUMP-BLDG	0	1	0	0	0	1
TOTALS	4	1	2	0	1	8

AMPHETAMINES PRESENT IN COMBINATION WITH OTHER DRUGS

CAUSE OF DEATH	Manner of Death ACC	SUI	HOM	EQ	UNK	TOTAL
Drug Caused Deaths						
OVERDOSE	5	2	0	0	0	7
Drug Related Deaths						
INTRACEREBRAL HEMORRHAGE	0	0	0	1	0	1
HANGING	0	0	0	1	0	1
GI HEMORRHAGE	0	0	0	1	0	1
TOTALS	5	2	0	3	0	10

GLOSSARY

ALKALOID OF MORPHINE GROUP	Typically referred to as morphine-type alkaloid, this is the chemical substance found in body fluids after the injection of heroin or other drugs derived from opium
TOXICOLOGY NOT VALID OR ELIMINATED	This term indicates that the deceased lived long enough after the injury to have eliminated some or all toxic agents from the body
FORENSIC PATHOLOGY	The specialty field of medicine involving the application of medical and pathology principles in determining the cause and manner of sudden, unexpected, and medically unattended deaths. This includes the type and nature of injury, public health hazards, type or nature of homicide weapon, the relation of injury to death and interpreting other factors for the court. These data are prepared and presented to the judicial system or public health interests in keeping with the best available knowledge
MODE OF DEATH	Indicates the manner of death, such as natural, accident, suicide or homicide, and is to be distinguished from cause of death, which is purely a medical determination
MODE EQUIVOCAL	With the cause of death determined, investigative data do not clearly differentiate between two modes of death, although some evidence supports one more likely
MODE UNDETERMINED	With the cause of death determined, investigative data do not clearly support one of two possible modes and either one is possible without prejudice
MODE UNKNOWN	Circumstances insufficient to indicate between possible modes, as when only bones are found, or when no medical cause of death is determined
PATHOLOGY	That branch of medicine which deals with the essential nature of disease, especially in the structural or functional changes in tissues, organs or systems of the body causing disease. It involves the diagnosis of disease by microscopic or chemical analysis
SEROLOGY	That branch of pathology which deals with the analysis of blood and body fluids. Blood types for identification, exclusion of a suspect or judicial purposes are examples of the use in this office

TOXICOLOGY	The scientific study of poisons, their detection, actions and treatment. The relationship of drug levels to emotional or personality change, behavioral or reasoning ability are frequent decisions based on these data
MEDICAL EXAMINER	A physician specifically trained in forensic pathology who is responsible for investigating and determining the cause and manner of sudden or unexpected death
AUTOPSY	A scientific dissection of the human body to determine the cause and nature of death in order to detect public health hazards, determine the method or type of death in homicides and improve the level of medical care in the community. In some cases, showing that no injury or wrongdoing was present is of great emotional and stabilizing value to the family

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SEAL OF THE CITY AND COUNTY OF SAN FRANCISCO

ANNUAL REPORT
July 1, 1991 - June 30, 1992

BOYD G. STEPHENS, M.D.
Chief Medical Examiner

850 Bryant Street
San Francisco, California 94103

3 1223 03273 2761

MEDICAL EXAMINER'S OFFICE
City and County of
San Francisco, California

ANNUAL REPORT
July 1, 1991 - June 30, 1992

Donna J. Allison, Ph.D.
Statistician and Data Analyst

Mrs. Roy E. Matson
Senior Management Assistant

Joseph E. Surdyka
Administrative Coroner

Boyd G. Stephens, M.D.
Chief Medical Examiner

4 49376 SFPL: ECONO JRS
35 SFPL 03/14/03 15

y and County of San Francisco **Chief Medical Examiner - Coroner**

January 1993

Honorable Frank Jordan, Mayor
Honorable Board of Supervisors
City and County of San Francisco
San Francisco, California 94102

Dear Mayor Jordan and Honorable Supervisors:

Attached is the annual report for the San Francisco Medical Examiner's Office for the fiscal year 1991-92. There have been significant activity changes in the department during this time period.

The ever-increasing state and federal regulations involving many facets of employee safety, biohazardous and chemical waste, and required training have and continue to require a large commitment in time and money. The training, personal protective equipment, and other related supplies necessary to protect employees from blood borne pathogens have increased the costs of each operation significantly. Laboratory regulations relating to chemical use and disposal have resulted in soaring costs for permits and hazardous waste disposal.

We have been assigned responsibility for the county's indigent dead contract and drug testing for the county probation programs. Our medical staff is now responding to all suspicious deaths in the county, and the numbers of consultations for various county departments for medical-legal support is growing at a very rapid rate.

The traditional work load for the department in numbers of cases reported, investigated, cleared and accepted, has increased. For the reasons stated above, the costs per case have increased significantly. The criminal court procedure continues to demand more evidence and documentation. All this at a time of decreasing resources and funding.

The medical examiner's staff has continued to perform at a very high level of professional confidence and devotion. The vast majority of the staff have advanced professional degrees and training, consistent with the sophisticated work performed by the office.

We have had considerable financial and staffing problems over this fiscal year meeting the budget and purchasing needs of the department in a time of shrinking financial resources.

553-1694 Hall of Justice, 850 Bryant Street San Francisco, CA 94103
ACCREDITED NATIONAL ASSOCIATION OF MEDICAL EXAMINERS

I'm very proud of my staff of dedicated professionals who, in spite of all the difficulties they have encountered during this year, continue to work hard, adapt to the changing needs of the judicial system, the absence of growth in equipment and supplies funding, and the increasing dangers from biohazards. The data included in this annual report reflect only a summary of some of the department activities, but do little to reflect the interrelation and dependence of many other departments on the accuracy and completeness of the professional work of the Medical Examiner's Office.

Sincerely,

Boyd G. Stephens, M.D.
Chief Medical Examienr

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INTRODUCTION

The Medical Examiner-Coroner is appointed by law to many responsibilities, the foremost of which is the investigation and certification of a variety of deaths including all deaths of other than natural causation, and any apparently natural deaths in which no physician can reasonably state the cause. The Medical Examiner can utilize any and all medico-legal investigative techniques, including autopsy, to establish both the medical cause of death, and mode or circumstances of death (natural, accident, homicide, suicide or undetermined).

The deaths which must be reported to the Medical Examiner-Coroner, as required by various sections of the Government, Health and Safety and Penal codes, are as follows:

1. Homicide - known or suspected
2. Suicide - known or suspected
3. Following accident or injury (whether the accident or injury is the primary cause or contributory, with death occurring immediately or at some remote time)
4. Medical attendance of less than 20 days
5. No physician in attendance
6. Physician unable to state the cause of death (must be unable, not merely unwilling)
7. Poisoning (food, chemical, drug, therapeutic agents)
8. Occupational or industrial deaths
9. All deaths where a patient has not fully recovered from an anesthetic, whether in surgery, recovery room, or elsewhere
10. All deaths in operating rooms
11. All solitary deaths (unattended by physicians or other person in the period immediately preceding death)
12. All deaths in which the patient is comatose throughout the period of the physician's attendance
13. All deaths of unidentified persons
14. All deaths in which there are grounds to suspect that the death occurred in any degree from a criminal act
15. All deaths involving contagious disease - known or suspected - and constituting a public health hazard
16. Deaths in prison or while under sentence
17. All deaths associated with a rape - known or alleged - or crime against nature
18. All deaths related to or following abortion - known or suspected
19. All deaths involving drowning, fire, hanging, gunshot, stabbing, cutting, starvation, exposure, alcoholism, drug addiction, strangulation or aspiration

Additional mandated responsibilities include protection and safekeeping of property belonging to deceased individuals, conducting inquests when indicated, maintaining proper public records, making reports to other agencies, identification of deceased persons, interment of indigent dead, and many other death-related activities.

The work with the living is discussed elsewhere.

FORENSIC MEDICINE

Forensic medicine generally is considered to be a marriage of medicine and the forensic sciences oriented to medico-legal issues. The field is wide-ranging and growing, becoming even broader in scope than the traditional concept as practiced in Europe.

There has been continued growth and accentuation of the role of forensic medicine in the legal and medico-legal world over the past year. This office has continued its role in forensic medicine for both living and dead, playing a vital role in the community.

We serve in a number of places in the community. Some of these include:

Examination and diagnosis of the living:

- Examination and evaluation of child abuse
- Examination and evaluation of sexual assault injuries
- Examination and evaluation of spousal abuse
- Evaluation of citizens' complaints against the Police Department
- Testimony and interpretation of hospital records and procedures
- Evaluation of force and patterned injuries
- Examination of victims and suspects for trace evidence and injuries
- Collection of blood from suspects and victims for serology, toxicology and other testing
- Court testimony on force, great body injury (GBI) and other issues
- Alcohol and drug interaction in driving under the influence cases and related issues
- Physiologic effects of drug interactions
- Toxicology, including environmental and industrial toxicities
- Teaching - Hospitals, forensic, law enforcement, community
- Analysis for drugs on patients on probation
- Analysis for drugs on management control cases for the County

Examination and evaluation of the dead:

- Scene investigation, reconstruction and analysis
- Evidence collection and testing
- Blood spatter analysis and interpretation
- Patterned evidence analysis and interpretation
- Trace evidence collection
- Time and place of death information
- Forensic autopsy - consultation and interpretation
- Analysis for chemical and limited serology testing
- Forensic toxicology
- Consultation with District Attorney and Public Defender
- Reconstruction Analysis and court presentation
- Teaching - forensic and legal

DEPARTMENT STATUS AND FUTURE

The department faces some significant problems now and for the future. One of these is the increasing numbers of "designer drugs" which are made for a number of reasons, including avoidance of existing Federal laws. These chemical analogues or new molecules constantly require new analytic approaches, techniques and standards. Hazards to users, officers and laboratory personnel are largely unknown, and some of the compounds are so dangerous that skin contact can be lethal or can produce delayed complications, such as Parkinson's disease.

The ever-increasing scientific capabilities in instrumentation and techniques result in a requirement for increased training and equipment for the department. Interfacing with other agencies and departments is increasing along with the need for information sources and sharing. These are some of the major problems for the future. The information and records issue will constitute a major decision and policy-making step over the next five years.

The department needs to obtain a stand-alone computer network to handle our unique requirements. Although the initial costs to the County will be relatively high, the long-term benefits and cost savings will more than offset this investment of time and money. The need to obtain access to major library data bases, legal information, and records management, will be some of the most expensive and time-consuming aspects of department management for this next five year period. The forensic world is growing so rapidly that it is difficult to foresee its exact direction. Trace evidence and DNA serology are unquestionably going to be a large part of that future for the next five years.

DEPARTMENTAL COSTS

1991 - 1992

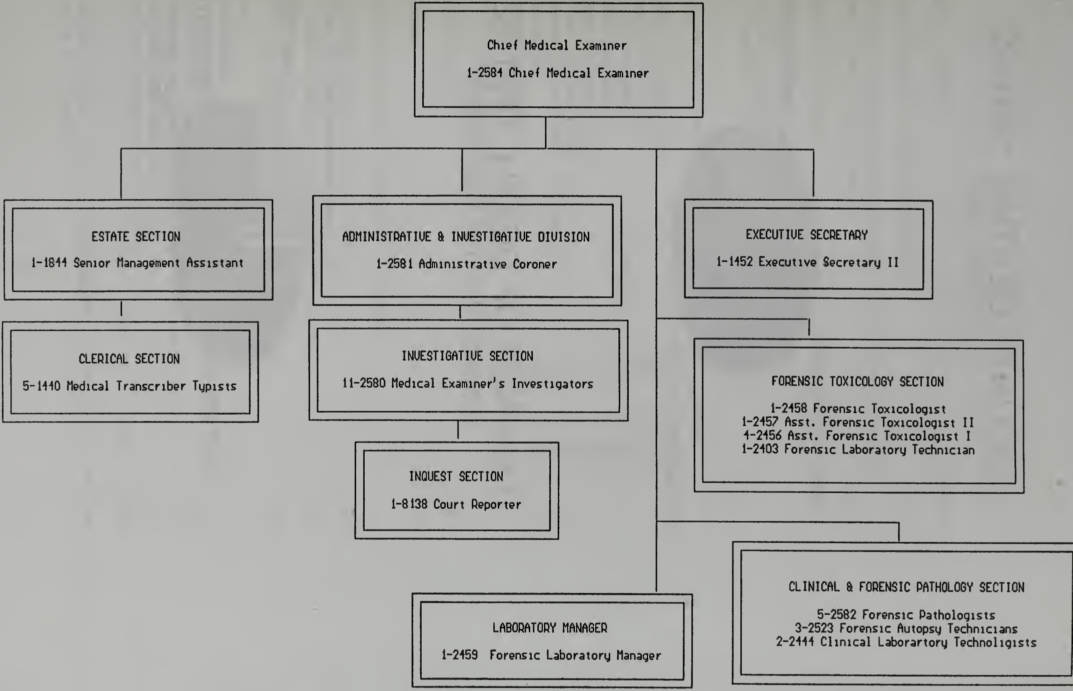
Total Budget	$2,772,219.00*
Transfers to controller, Health and Retirement	$ 471,210.00
NET BUDGET (all other costs)	2,301,009.00
Total Cases	4,653
Cost per case investigated	$ 495.00
Revenues (sales of records, public auctions, fee-for-service work	$ 175,258.00*
Total Costs Ad Valorum Taxes per case investigated	$ 457.00

As indicated elsewhere, this includes all investigative, administrative, scientific and expert witness costs to the County.

* DUI fines money included

ORGANIZATIONAL CHART

Medical Examiner's Office


Chief Medical Examiner
1-2584 Chief Medical Examiner
ESTATE SECTION
1-1844 Senior Management Assistant
CLERICAL SECTION
5-1440 Medical Transcriber Typists
ADMINISTRATIVE & INVESTIGATIVE DIVISION
1-2581 Administrative Coroner
INVESTIGATIVE SECTION
11-2580 Medical Examiner's Investigators
INQUEST SECTION
1-8138 Court Reporter
LABORATORY MANAGER
1-2459 Forensic Laboratory Manager
EXECUTIVE SECRETARY
1-1452 Executive Secretary II
FORENSIC TOXICOLOGY SECTION
1-2458 Forensic Toxicologist
1-2457 Asst. Forensic Toxicologist II
4-2456 Asst. Forensic Toxicologist I
1-2403 Forensic Laboratory Technician
CLINICAL & FORENSIC PATHOLOGY SECTION
5-2582 Forensic Pathologists
3-2523 Forensic Autopsy Technicians
2-2444 Clinical Laborartory Technoligists

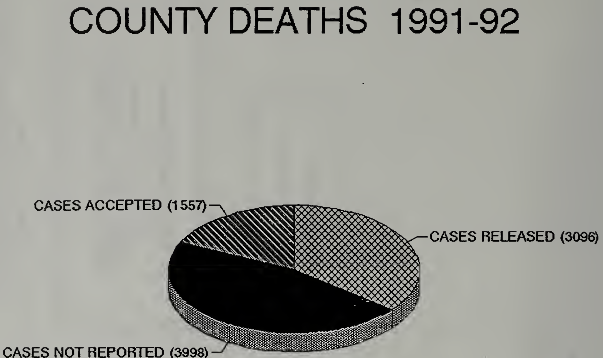


Figure 1.

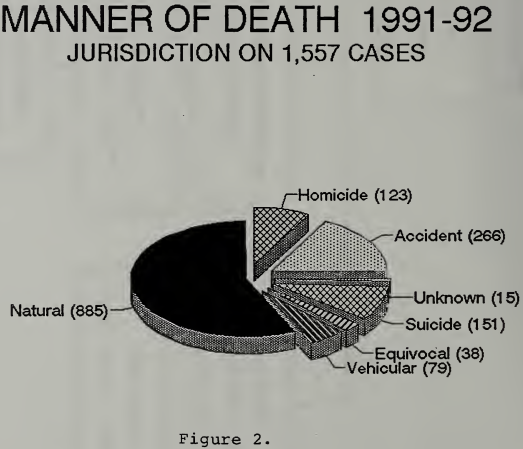


Figure 2.

FISCAL YEAR 1991-92

Total Deaths in County	8,651
Total Deaths Reported to Medical Examiner	4,653
Cases Reported, Investigated and Cleared by the Medical Examiner for physician's signature	3,096
Medical Examiner's Cases	1,557

% Reported to Medical Examiner	53.8
% County Deaths Having Medical Examiner's Jurisdiction	18.0

Cases Accepted by the Medical Examiner (by manner of death)*

1.	Natural Deaths (NC)	862	(55.4%)
2.	Accidents (ACC)	266	(17.1%)
3.	Suicides (SUI)	153	(9.8%)
4.	Homicides (HOM)	123	(7.9%)
5.	Mode Equivocal (EQ)	40	(2.6%)
6.	Cause Unknown (UNK)	15	(1.0%)
7.	Sudden Infant Death Syndrome (SIDS)	23	(1.5%)
8.	Vehicular	75	(4.8%)
9.	Private Autopsies	4**	

**Not included in above figures.

Autopsies performed	1,132
Autopsy Index	73%

Dispositions Authorized by the Medical Examiner

1.	Indigents and fetus dispositions	150
2.	Cases buried by funeral home with Public Administrator-controlled funds	37

Inquests Held or Depositions Taken	42

Identification

1.	Persons brought to Medical Examiner's Office with insufficient identification	194
2.	Persons subsequently identified by fingerprints, dental X-rays or other means	192
3.	Persons buried as unidentified	2
4.	Fingerprints taken and forwarded to FBI, CII, or SFPD	1,356

* The abbreviations following each manner of death will be used in most tables in this report.

CONSULTATIONS, COURT APPEARANCES, EXAMINATIONS AND REFERRALS
FISCAL YEAR 1991-92

Court appearances are made and consultations are conducted, as required, on cases involving both living and deceased individuals.

Type	Number
Court appearances	104
Consultations	942

The number of consultations has increased substantially over the previous fiscal year (See Figure 3, below).

Examinations	
Suspected child abuse	6

Specimens submitted for toxicology testing from living individuals	
Living victims or defendants in violent crimes	72
Management control - other City departments	518
Probation - Adult	3,159
Probation - Juvenile	427
DUI suspects	408
11550 suspects	270

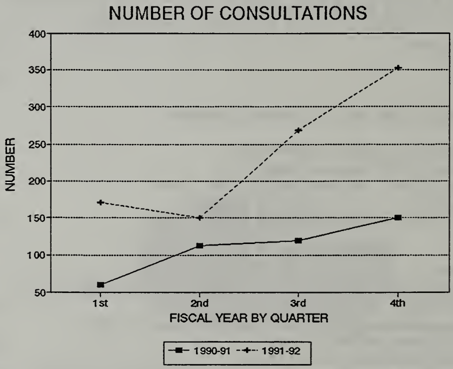


Figure 3.

MEDICAL EXAMINER CASES FOR 1991-92

In fiscal year 1991-92, there were 8,651 deaths in San Francisco County. Of these deaths, 4,653 were reported to the San Francisco Medical Examiner's Office. The Medical Examiner's Investigators examined the previous medical history, circumstances surrounding the deaths and, in many cases, the scene of the death, and determined that 1,557 of these deaths came under the jurisdiction of this office. See Figure 1, page 8). Autopsies were performed on 73% of these cases.

1. The highest total number of deaths occurred in January, 1992. The highest number for the various manners of death occurred during other months (e.g., highest number of accidental deaths in December 1991, highest number of homicides in May 1992, highest number of suicides in June 1992). See Table I and Figure 4, page 12.

2. The racial distribution for each manner of death was quite variable. For example, the value of the ratio of whites/blacks was 4.0 overall, 4.7 for accidents, 13.7 for suicides (as compared to 27.8 for 1989-90), and 0.96 for homicides. See Table II, page 13 and Figure 6, Page 15.

3. The age range distribution for each manner of death was also variable. For example, the highest number of accidental deaths and suicides occurred in the 30-39 year age group, while the highest number of homicides occurred in the 20-29 year age group. During this fiscal year as compared to the previous year, the number of accidental deaths in the age group of 20-59 increased by 20%, from 148 to 177, while the number of homicides in this group increased by 40%, from 70 to 98. The number of suicides in the age group of 50-89 decreased from 71 to 52, a decrease of 27%! See Table III, page 13.

4. The overall distribution of deaths by sex (ratio of male/female) was 2.3, but this varied by manner of death from 1.9 in deaths due to natural causes to 3.7 in homicide deaths. See Table IV and Figure 5, page 14.

MEDICAL EXAMINER CASES FOR 1991-92

TABLE I. MANNER OF DEATH - MONTHLY COMPARISON

Month of Death	Manner of Death								
	ACC	HOM	SUI	NC	VEH*	SIDS#	EQ	UNK	TOTALS
July	18	9	15	64	9	1	6	3	125
August	24	14	13	69	2	1	2	2	127
September	19	14	10	69	6	2	0	0	120
October	26	5	19	64	10	2	4	0	130
November	12	12	7	70	10	4	2	1	118
December	32	8	13	86	6	1	3	1	150
January	26	12	15	100	5	4	3	1	166
February	24	6	9	74	7	2	3	3	128
March	19	9	14	52	10	2	8	2	116
April	22	8	6	79	2	2	2	0	121
May	24	15	9	67	3	0	3	1	122
June	20	11	21	68	9	2	2	1	134
TOTALS	266	123	151	862	79	23	38	15	1557

*VEH = Vehicular deaths. These include 15 deaths ruled to be homicide, 58 cases ruled to be accidental, 4 ruled to be equivocal and 2 ruled to be by suicide.

# SIDS = Sudden Infant Death Syndrome

Fig. 4.

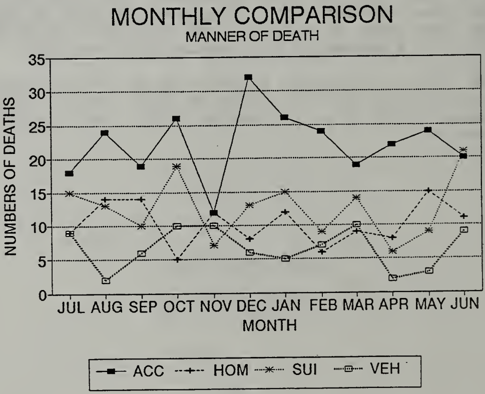


TABLE II. MANNER OF DEATH BY RACE

Manner of Death

Race	ACC	HOM	SUI	NC	VEH*	SIDS#	EQ	UNK	TOTALS
White	196	53	123	632	54	7	23	8	1096
Black	42	55	9	134	10	9	9	5	273
Asian	24	12	18	82	11	5	6	1	159
Other	4	3	1	14	4	2	0	1	29
TOTALS	266	123	151	862	79	23	38	15	1557

TABLE III. MANNER OF DEATH BY AGE

Manner of Death

Age Group	ACC	HOM	SUI	NC	VEH*	EQ	UNK	TOTALS
0-11 months	3	3	0	30#	0	0	0	36
1-5 years	3	1	0	4	4	1	1	14
6-12 years	0	1	0	1	0	0	0	2
13-16 years	0	2	2	0	1	0	0	5
17-19 years	2	12	4	0	2	2	0	22
20-29 years	34	39	26	8	22	3	0	132
30-39 years	65	32	34	55	14	13	3	216
40-49 years	56	17	30	115	13	10	7	248
50-59 years	22	10	14	119	3	4	2	174
60-69 years	18	0	12	182	3	2	1	218
70-79 years	22	0	17	183	11	0	0	233
80-89 years	30	5	9	143	4	2	0	193
90+ years	11	1	3	45	2	1	0	63
Unknown	0	0	0	0	0	0	1	1
TOTALS	266	123	151	885	79	38	15	1557

# Includes 23 SIDS (Sudden Infant Death Syndrome) deaths

* VEH = Vehicular deaths. These include 15 deaths ruled to be homicide, 58 cases ruled to be accidental, 4 cases ruled to be equivocal, and 2 ruled to be by suicide.

TABLE IV. MANNER OF DEATH BY SEX

Manner of Death

Sex	ACC	HOM	SUI	NC	VEH*	SIDS#	EQ	UNK	TOTALS
M	191	97	118	567	62	14	26	13	1088
F	75	26	33	295	17	9	12	2	469
TOTALS	266	123	151	862	79	23	38	15	1557

* = Vehicular deaths. These include 15 cases ruled to be homicide, 58 cases ruled to be accidental, 4 ruled to be Mode Equivocal, and 2 ruled to be by suicide.

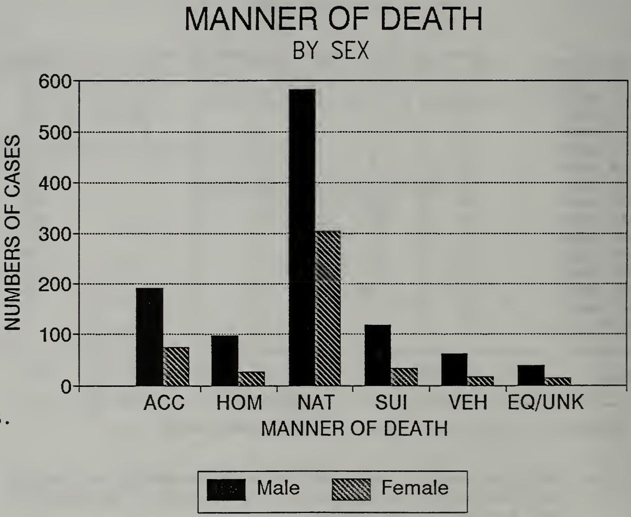


Fig. 5.

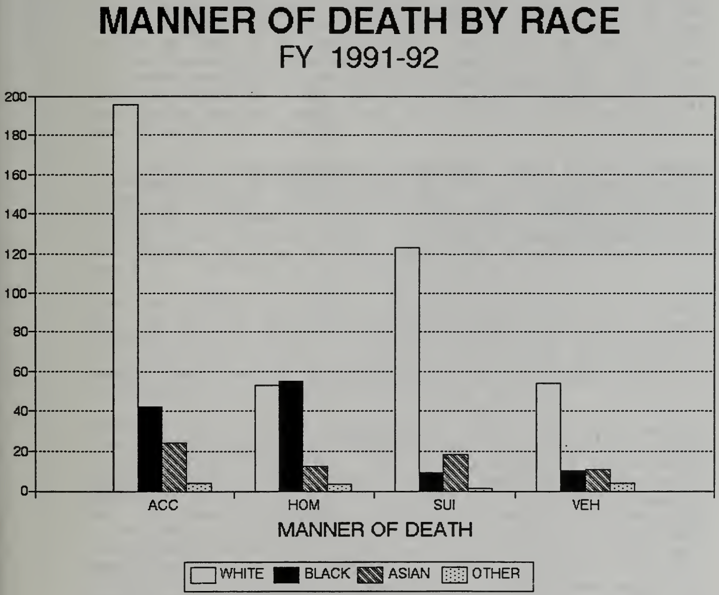

MANNER OF DEATH BY RACE
FY 1991-92
200
180
160
140
120
100
80
60
40
20
0
ACC
HOM
SUI
VEH
MANNER OF DEATH
WHITE
BLACK
ASIAN
OTHER

Figure 6.

YEARLY COMPARISON OF MEDICAL EXAMINER'S CASES

Comparisons of manners of death as well as methods used over the last eight fiscal years are presented in this section. The most significant differences which have occurred over the last eight years which can be observed in these tabulations include:

1. Regarding manners of death, the number of homicides (123) during fiscal year 1991-92 was a dramatic increase (40%) from the previous fiscal year and is the highest number of homicides during the last 8 fiscal years. The number of accidental deaths increased from 1990-91, and is the second highest number of accidental deaths during the last 8 fiscal years. The number of cases ruled to be suicide (153) was nearly the same as in 1990-91 (154). The number of deaths due to natural causes which came under the jurisdiction of this office was the lowest seen for any year during the past eight years. The total number of vehicular deaths (79) was the second highest seen for any year during the last eight fiscal years. (See Table V and Figure 7, page 18 and Figure 2, page 8).

2. With respect to the methods used in homicide deaths, the most notable differences from the previous fiscal year are a 40% increase in deaths caused by firearms, from 50 to 70 and a 57% increase in homicide deaths due to traumatic injuries. Deaths due to firearms accounted for 51% of all homicide deaths. The number of deaths which resulted from stabbing (20) was slightly higher than in the previous fiscal year (17). (See Table VI and Figure 8, page 19).

3. There was virtually no change in the number of suicides during fiscal year 1991-92 (153) as compared to 1990-91 (156). There was a notable increase (54%) in deaths due to jumps from buildings as compared to fiscal year 1990-91. For the first time in the last 8 fiscal years, suicidal deaths due to poisoning account for the largest number of suicides (29%). (See Table VII and Figure 9, page 20).

4. Regarding deaths ruled to be accidental, the most significant observation is a 27% increase in accidental deaths due to drugs, as compared to the previous fiscal year. There were 2 accidental deaths due to firearms during 1991-92. Deaths due to smoke or carbon monoxide inhalation increased by 75% while deaths due to burns decreased by 60%. The number of accidental deaths due to drowning decreased by 67% to the lowest level seen over the previous 8 fiscal years. The number of accidental deaths due to falls increased by 11% but are still at a lower level than had been seen prior to 1988-89. However, the number of deaths from falls is still second only to deaths from drugs as a leading cause of accidental deaths (See Table VIII and Figure 10, page 21 and Figure 10, page 21).

YEARLY COMPARISONS OF MEDICAL EXAMINER-CORONER'S CASES

TABLE V. YEARLY COMPARISON OF MANNER OF DEATH

	Fiscal year							
Manner of Death	'84-'85	'85-'86	'86-'87	'87-'88	'88-'89	'89-'90	'90-'91	'91-'92
Accident	214	231	222	258	258	298	229	266
Homicide	95	120	110	110	91	94	88	123
Suicide	153	161	171	162	171	128	154	153
Natural	1210	1150	1040	1074	1010	903	911	885
Vehicular*	60	61	46	75	71	76	83	79
Equiv/Undet	55	63	62	82	85	76	72	53
TOTALS	1787	1786	1651	1761	1686	1575	1537	1557

* Vehicular deaths include 15 cases ruled to be homicide, 58 cases ruled to be accidental, 4 cases ruled to be Mode Equivocal/Undetermined and 2 cases ruled to be suicide.

Figure 7.

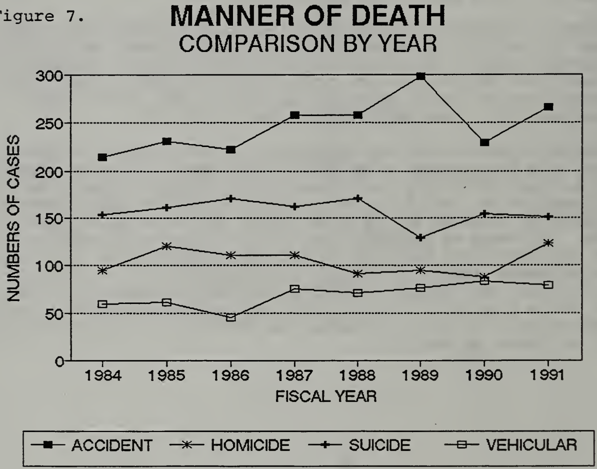


TABLE VI. YEARLY COMPARISON OF HOMICIDE METHODS USED

Method Used	Fiscal year '84-'85	'85-'86	'86-'87	'87-'88	'88-'89	'89-'90	'90-'91	'91-'92
Firearms	26	40	41	48	41	61	50	70
Stabbing	31	34	32	35	21	17	17	20
Traum. Inj.	19	18	21	23	22	10	14	22
Vehicular	7	11	7	13	16	10	16	15
Asphyxiation	8	8	8	3	5	3	5	7
Other	4	9	1	1	2	3	2	4
TOTALS	95	120	110	123	107	104	104	138

Figure 8.

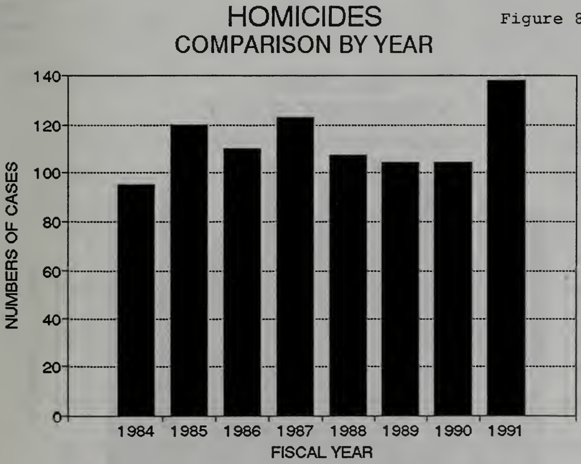


TABLE VII. YEARLY COMPARISON OF SUICIDE METHODS USED

Fiscal year

Method Used	'84-'85	'85-'86	'86-'87	'87-'88	'88-'89	'89-'90	'90-'91	'91-'92
Poisoning	34	36	32	32	44	31	37	44
Firearms	34	46	45	42	44	35	40	37
Hanging	29	28	29	28	17	23	25	23
Jump/Building	15	16	19	19	30	7	13	20
Asphyx/strang	1	2	3	7	7	6	6	9
CO Poisoning	8	6	6	2	2	9	5	6
Jump/GG Brdg	18	17	19	18	15	10	13	4*
Jump/Bay Brdg	0	0	1	1	2	2	0	2
Jump/Other	–	–	–	–	–	–	–	2
Cut/stab	4	5	9	8	5	3	7	2
Drowning	0	3	6	3	2	0	1	2
Vehic. BART	–	–	–	–	–	–	–	2
Burning	0	1	0	0	2	0	2	0
Other	10	1	2	2	1	2	7	0
TOTALS	153	161	171	162	171	128	156	153

Figure 9.

SUICIDES
COMPARISON BY YEAR

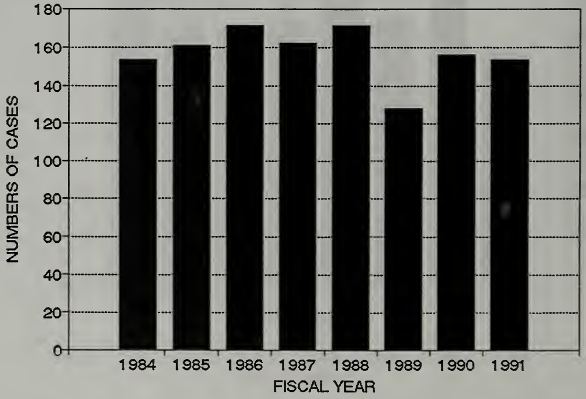


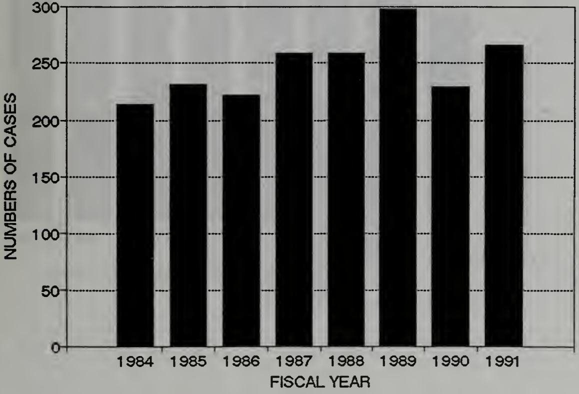
TABLE VIII. YEARLY COMPARISON OF ACCIDENTAL* DEATH SITUATIONS

Situation	Fiscal year '84-'85	'85-'86	'86-'87	'87-'88	'88-'89	'89-'90	'90-'91	'91-'92
Drugs/Poisons	78	96	92	100	144	157	97	123
Falls	74	67	80	76	54	53	55	61
Med. Misadv.	-	-	12	13	6	7	12	18
Smoke/CO inhal	3	0	9	8	11	4	8	14
Drug/Alcohol Abuse Rel.	-	-	-	13	9	3	6	13
Aspiration	14	7	8	10	5	13	10	12
Burns	14	15	6	12	3	15	10	4
Drowning	6	9	5	14	11	10	12	4
Asphyxia	2	6	4	2	8	8	3	3
Firearms	1	2	1	1	3	0	2	2
Drug Reactions	-	-	-	-	-	-	4	2
Head Trauma	-	-	-	-	-	11	3	1
Hanging	-	-	-	2	2	0	2	0
Other	22	29	3	7	2	5	5	9
TOTALS	214	231	222	258	258	298	229	266

* Vehicular deaths are not included in this tabulation.

ACCIDENTS
COMPARISON BY YEAR

Figure 10.



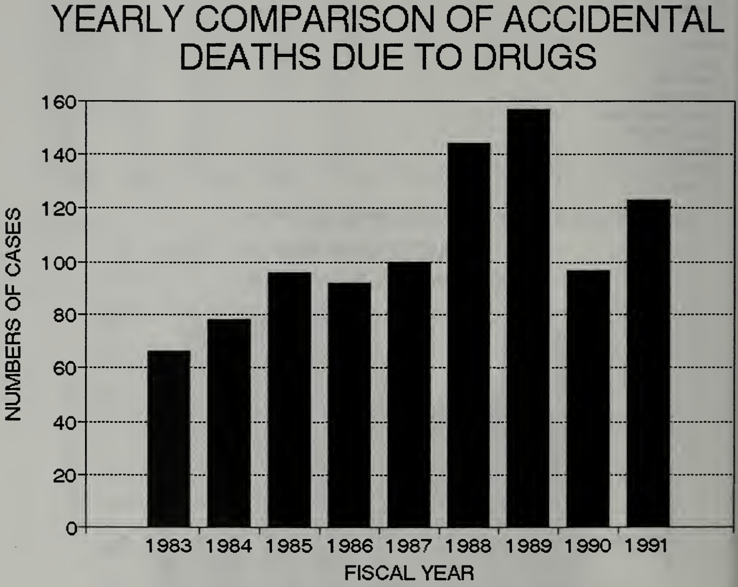

YEARLY COMPARISON OF ACCIDENTAL DEATHS DUE TO DRUGS
NUMBERS OF CASES
0
20
40
60
80
100
120
140
160
1983
1984
1985
1986
1987
1988
1989
1990
1991
FISCAL YEAR

Figure 11.

TABLE IX. VIOLENT DEATHS

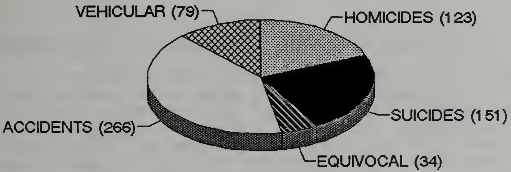
Of the 1,557 deaths investigated by the Medical Examiner's Office during 1991-92, 653 were determined to be the result of violence.

Mode	Total No.	% of Coroner's Cases	% of County Deaths
ACCIDENT	324	20.8	3.7
Vehicular	58	3.7	
Non-vehicular	266	17.1	
SUICIDE	153	9.8	1.8
Vehicular	2	0.1	
Non-vehicular	151	9.7	
HOMICIDE	138	8.9	1.6
Vehicular	15	1.0	
Non-vehicular	123	7.9	
EQUIVOCAL	38	2.4	0.4
Vehicular	4	0.2	
Non-vehicular	34	2.2	

VIOLENT DEATHS IN 1991-92

TOTAL=653

Figure 12.



ACCIDENTAL DEATHS

Three hundred and twenty four deaths were ruled to have been due to accidental means during the 1991-92 fiscal year. Of these, 266 were non-vehicular accidental deaths. The number of individuals dying by each manner of accidental death are indicated in Figure 13, page 27 and Table X, page 28, and the percentages of all accidental deaths represented by each manner are indicated on Table X, page 28.

Of the accidental death victims tested for alcohol and drugs (i.e. those in the hospital for less than 24 hours), a large percentage had significant levels of alcohol in their blood; many had abuse drugs present (See Table X, page 28).

Abuse Drug Involvement (Table XI, page 29)

Overall, the number of accidental death cases where abuse drugs were present increased dramatically from fiscal year 1990-91 (110 cases) to fiscal year 1991-92 (163 cases), a 48% increase! Of the deaths caused by drugs, heroin (measured as morphine) was seen most frequently (76 cases). The second most frequently seen abuse drug in deaths due to drugs was cocaine (60 cases). The number of cases with cocaine present increased by 35% from the previous fiscal year (52 to 70), the number of cases with heroin present increased by 57% (from 49 to 77 cases), while deaths with amphetamines present increased by 88% during this same time period (from 8 to 15). Abuse drugs may have played a role in accidental deaths by falls (4 cases), firearms (1 case) and smoke inhalation (1 case).

Racial Distribution (Figure 14, page 30 and Table XII, page 31)

Overall, accidental deaths occurred most frequently in whites. Accidental deaths due to smoke or carbon monoxide inhalation increased 75% from 1990-91 to 1991-92 (from 8 to 14). Such deaths occurred less frequently in whites (57%) than would be anticipated by the overall involvement of this racial group in accidental deaths (74%). Asians are more heavily represented in deaths due to smoke or carbon monoxide inhalation (28%), and blacks are less heavily represented in deaths by falls (7%) than would be expected based on the general involvement of these racial groups in all types of accidental deaths.

Age Distribution (Figure 15, page 32 and Table XIII, page 33)

Deaths due to smoke/carbon monoxide inhalation or maternal drug abuse during pregnancy are the most common causes of accidental deaths in the youngest age group (0-5 years). There were only 2 non-vehicular accidental deaths in the age group from 6-19 years, less than 1.0% of all non-vehicular accidental deaths during 1991-92. The most common causes of accidental deaths in people over 60 years of age are aspiration (84% of all aspiration deaths), burns (75% of all deaths due to burns), falls (58% of all deaths due to falls), and smoke/carbon monoxide inhalation (56% of all such deaths). As noted in last year's annual report, there was a decrease seen in the number of deaths due

Age Distribution (Continued)

to falls in people over 60 years of age from 1987-88 to 1988-89 (from 54 to 30). During fiscal year 1989-90, there were only 31 such deaths, in 1990-91, 34 such deaths, and in 1991-92, 35 such deaths, virtually no change from 1988-89. Deaths due to drug overdoses are concentrated in the 20-49 year age group with 40% of all deaths due to drug overdoses in the 30-39 year age group.

Distribution by Sex (Table XIV, page 34)

Males are 2.5 times as likely as females to be the victims of non-vehicular accidental deaths. This difference is even more pronounced (4.9 times) in deaths due to drug overdoses and is less pronounced in deaths due to falls, burns and drug reactions. The increase in deaths from drug overdoses as compared to the previous fiscal year involved only deaths in males (42% increase!) while the drug overdose deaths in females decreased by 16%.

NON-VEHICULAR ACCIDENTS

This category includes all unintentional fatalities. There were 266 accidental deaths (non-vehicular) which accounted for 17.1% of the Medical Examiner death investigations for the fiscal year of 1991-92.

CIRCUMSTANCES OF NON-VEHICULAR ACCIDENTAL DEATHS IN 1991-92

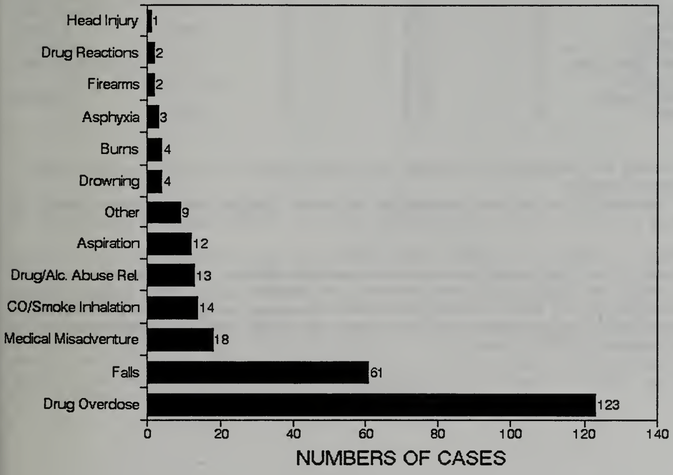


Figure 13.

TABLE X. ACCIDENTAL DEATHS BY MODE

Drug and Alcohol Involvement

METHOD	NUMBER	% OF TOTAL ACCIDENTS	% ALC.*	AVE. ALC. CONC (g%)	% DRUGS**
DRUG O.D.	123	46.2	48	0.17%	--
FALLS	61	22.9	35	0.17%	18
MEDICAL MISADVENTURE	18	6.8	0	-	0
SMOKE/CO INHALATION	14	5.3	8	0.07%	8
DRUG/ALC ABUSE REL.	13	4.9	0	-	70
ASPIRATION	12	4.5	40	0.19%	0
BURNS	4	1.5	0	-	0
DROWNING	4	1.5	67	0 26%	0
ASPHYXIA	3	1.1	0	-	0
DRUG REACTIONS	2	0.8	0	-	0
FIREARMS	2	0.8	50	0.19	50
HEAD TRAUMA	1	0.4	0	-	0
OTHER	9	3.4	14	0.13%	20

* Refers to percentage of victims (of those tested) with positive blood ethyl alcohol levels.

** Refers to percentage of victims (of those tested) with positive tests for abuse drugs.

Overall, alcohol was present in the systems of approximately one-third of those dying in accidents and may have been a contributing factor in the accident. It should be noted that, when present, the average blood ethyl alcohol concentrations for all modes, except for deaths by smoke/carbon monoxide inhalation, are substantially higher than the level of 0.08% which is considered to be intoxicated when driving.

TABLE XI. ABUSE DRUGS PRESENT IN NON-VEHICULAR ACCIDENTS

	DRUGS			
Situation	Cocaine	PCP	Morphine	Amphetamines
ASPHYXIA/SUFFOCATION	0	0	0	0
ASPIRATION	0	0	0	0
BURNS	0	0	0	0
FALLS	3	0	1	0
DROWNING	0	0	0	0
DRUG/ALCOHOL ABUSE REL.	5	0	0	2
MEDICAL MISADVENTURE	0	0	0	0
DRUG OVERDOSE	60	1	76	12
SMOKE/CO INHALATION	1	0	0	0
HEAD TRAUMA	0	0	0	0
OTHER	0	0	0	1
FIREARMS	1	0	0	0
DRUG REACTIONS	0	0	0	0
TOTALS	70	1	77	15

* Drugs may have been present singly or in combination
** Drugs used therapeutically are not included in this tabulation

Overall, the number of accidental death cases where abuse drugs were present increased 48%, from 110 in 1990-91 to 163 in 1991-92! The number of deaths due to an overdose of cocaine increased from 44 in 1990-91 to 60 in 1991-92, a 36% increase. The number of deaths due to an overdose of heroin (measured as morphine), increased 62%, from 47 in 1990-91 to 76 in 1991-92. The number of deaths where PCP was present remained at 1. The most remarkable change was seen in accidental deaths in which amphetamines were present - there was an 88% increase, from 8 in 1990-91 to 15 in 1991-92.

RACE OF NON-VEHICULAR ACCIDENT VICTIMS 1991-92

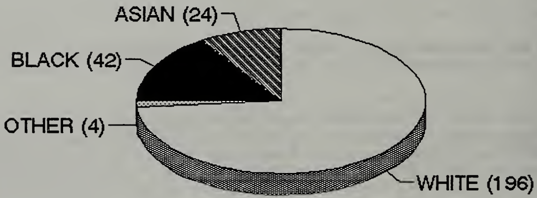


Figure 14.

TABLE XII. ACCIDENTAL DEATH SITUATIONS BY RACE

	Race				
Method	White	Black	Asian	Other	Total
Asphyxia	3 (100%)*	0	0	0	3
Aspiration	8 (67%)	2 (17%)	2 (17%)	0	12
Burns	2 (50%)	2 (50%)	0	0	4
Drowning	2 (50%)	0	2 (50%)	0	4
Drug/Alcohol Abuse Rel	8 (62%)	4 (31%)	1 (8%)	0	13
Drug O.D.	96 (78%)	21 (17%)	5 (4%)	1 (1%)	123
Drug Reactions	2 (100%)	0	0	0	2
Falls	48 (79%)	4 (7%)	7 (11%)	2 (3%)	61
Firearms	2 (100%)	0	0	0	2
Head Trauma	0	0	0	1 (100%)	1
Medical Misadventure	11 (61%)	5 (28%)	2 (11%)	0	18
Smoke/CO Inhalation	8 (57%)	2 (14%)	4 (28%)	0	14
Other	6 (67%)	2 (2%)	1 (11%)	0	9
Totals	196 (74%)	42 (16%)	24 (9%)	4 (2%)	266

* Row percentages refer to percentages by race for each mode. These can be compared to total percentages for each race to see whether a mode is more or less prevalent in a racial group. For instance, deaths from drowning appear to occur less frequently in whites (50%) than the general involvement of whites in accidents (74%). Deaths from falls occur less frequently in blacks (7%) than would be anticipated, based on the overall involvement of blacks in accidental deaths (16%). Deaths due to smoke inhalation appear to occur more frequently in Asians (28%) than would be anticipated, based on the involvement of Asians in accidental deaths (9%).

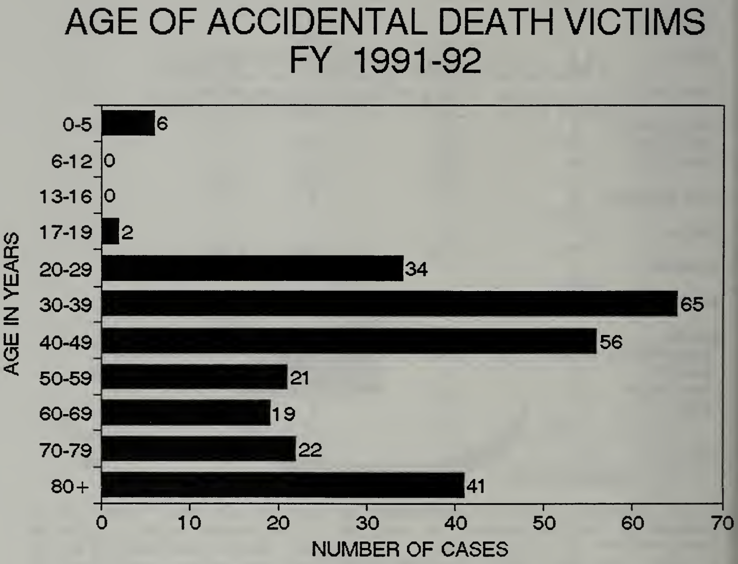

AGE OF ACCIDENTAL DEATH VICTIMS
FY 1991-92
AGE IN YEARS
0-5
6-12
13-16
17-19
20-29
30-39
40-49
50-59
60-69
70-79
80+
6
0
0
2
34
65
56
21
19
22
41
0
10
20
30
40
50
60
70
NUMBER OF CASES

Figure 15.

TABLE XIII. ACCIDENTAL DEATH SITUATIONS BY AGE

	Age Range										
Method	0-5	6-12	13-16	17-19	20-29	30-39	40-49	50-59	60-69	70-79	80+
Asphyxia	1 (33%)	0	0	0	0	0	0	0	1 (33%)	0	1 (33%)
Aspiration	0	0	0	0	0	0	2 (17%)	0	0	2 (17%)	8 (67%)
Burns	0	0	0	0	0	0	1 (25%)	0	0	1 (25%)	2 (50%)
Drowning	0	0	0	0	1 (25%)	0	2 (50%)	0	0	1 (25%)	0
Drug/Alc Abuse Rel	2 (15%)	0	0	0	0	4 (31%)	3 (23%)	3 (23%)	1 (8%)	0	0
Drug O.D.	0	0	0	1 (1%)	23 (19%)	49 (40%)	36 (29%)	10 (8%)	3 (2%)	1 (1%)	0
Drug Reactns	0	0	0	0	0	0	0	0	2 (100%)	0	0
Falls	0	0	0	0	8 (13%)	5 (8%)	8 (13%)	5 (8%)	4 (7%)	9 (15%)	22 (36%)
Firearms	0	0	0	0	2 (100%)	0	0	0	0	0	0
Head Trauma	0	0	0	0	0	1 (100%)	0	0	0	0	0
Medical Misad.	1 (6%)	0	0	1 (6%)	0	2 (11%)	1 (6%)	0	4 (22%)	5 (28%)	4 (22%)
Smoke/CO Inhal.	2 (14%)	0	0	0	0	1 (7%)	1 (7%)	2 (14%)	3 (21%)	2 (14%)	3 (21%)
Other	0	0	0	0	0	3 (33%)	2 (22%)	1 (11%)	1 (11%)	1 (11%)	1 (11%)
TOTALS	6	0	0	2	34	65	56	21	19	22	41
% OF TOTAL	2%			1%	13%	24%	21%	8%	7%	8%	15%

* Row percents refer to percentage by age range for each mode. These can be compared to total percentages for each age range to see if a mode is more or less prevalent in an age group. For example, smoke/CO inhalation occurred more frequently in the 0-5 years of age group (14%) than the general involvement of this age group in accidents (2%) while falls in the 30-39 year age group occurred less frequently (8%) than all accidents in this age group (24%). Falls in the age group 60-80+ occurred more frequently (58%) than all accidents in this age group (30%).

TABLE XIV. ACCIDENTAL DEATH SITUATIONS BY SEX

	Sex	
Method	Male	Female
Asphyxia	2 (67%)*	1 (33%)
Aspiration	9 (75%)	3 (25%)
Burns	2 (50%)	2 (50%)
Drowning	2 (50%)	2 (50%)
Drug/Alcohol Abuse Related	9 (69%)	4 (31%)
Drug O.D.	102 (83%)	21 (17%)
Drug Reactions	0 (0%)	2(100%)
Falls	38 (62%)	23 (38%)
Firearms	2(100%)	0 (0%)
Head Trauma	1(100%)	0 (0%)
Medical Misadven.	8 (44%)	10 (56%)
Smoke/CO Inhal.	10 (71%)	4 (29%)
Other	6 (67%)	3 (33%)
TOTALS	191	75
% OF TOTAL	72%	28%

* Row percents refer to percentages by sex for each mode. These can be compared to total percentages for each sex to see whether a mode is more or less prevalent in one sex. For example, drug overdoses appear to occur more frequently in males (83%) than the general involvement of males in accidents (72%), while deaths from burns occur more frequently in females (50%) than all accidents in females (28%).

VEHICULAR DEATHS

In 1991-92, there were 79 vehicular fatalities in San Francisco. The number of such fatalities by type are indicated in Figure 16, page 36 and Table XV, page 37. Percentages of all vehicular fatalities by type are shown in Table XV, page 37. The largest number of vehicular fatalities involved pedestrians; the second largest number involved motorcycle drivers. It is interesting to note that the number of automobile driver fatalities decreased by 52% from 1990-91 (21) to 1991-92 (10), the number of automobile passenger fatalities decreased by 50% from 1990-91 (16) to 1991-92 (8), while the number of pedestrian fatalities increased by 37%, from 1990-91 (27) to 1991-92 (37).

Of the vehicular fatalities tested for alcohol (i.e. those in the hospital for less than 24 hours), 2/3 of auto drivers and nearly 3/4 of motorcycle drivers showed a positive test for ethyl alcohol. Pedestrians had the highest average blood ethyl alcohol concentration (0.28%). Those in the "Other/Unknown" group and those dying in a vehicular accident involving BART were the vehicular fatalities with the highest percentages of drugs present. Those dying in a vehicular accident involving BART had the highest percentage of both alcohol and drugs present.

Abuse Drug Involvement (Table XVI, page 37)

Cocaine was the abuse drug seen most frequently in vehicular fatalities (9 cases) followed in frequency by heroin (1 case). The number of vehicular fatalities with abuse drugs present was 10 during 1991-92, an increase of 67% from 1990-91.

Age Distribution (Table XVII, p. 38, Table XVIII, p. 39, and Figure 17, p. 38)

The average age of motorcycle drivers was 28 years as compared to the average age of auto drivers (46 years) who were vehicular fatalities during 1991-92. The mean age of pedestrians dying as traffic fatalities was the highest seen for any type of traffic fatality (54 years) with the 50+ year age group being overrepresented in the pedestrian fatalities (54%) as compared to the overall involvement of this age group in all types of traffic fatalities (30%). There was an increase of pedestrian fatalities in the 50+ year age group from 1990-91 (13) to 1991-92 (20). There was a 160% increase in vehicular deaths in the 40-49 year age group and a 50% decrease in the 0-16 year age group as compared to 1990-91!

Distribution by Sex (Table XVIII, page 39)

Males were the predominant victims in all types of vehicular fatalities.

Racial Distribution (Table XVIII and Figure 18, page 39)

Overall, vehicular fatalities occur more frequently in whites. Asians were represented more heavily among deaths of pedestrians (19%) than would be expected by their involvement in all vehicular fatalities (14%). While blacks were most heavily represented among auto driver fatalities (36%) during 1989-90, interestingly there were no fatalities in black auto drivers during either 1990-91 or 1991-92. The percentage of white auto driver fatalities increased from 29% of the total in 1989-90 to 57% of the total in 1990-91 and to 70% of the total in 1991-92!

VEHICULAR DEATHS

In San Francisco, there were 79 vehicle-related fatalities (58 accidents, 15 homicides, 2 deaths ruled to be suicide and 4 with mode equivocal), accounting for 5% of the Medical Examiner death investigations for the fiscal year 1991-92.

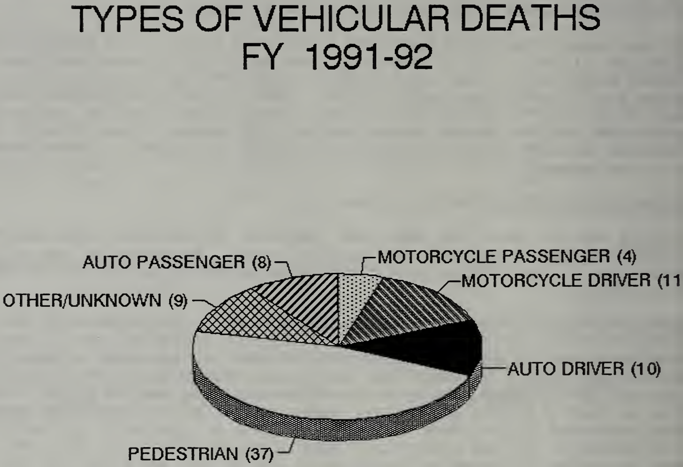


Figure 16.

TABLE XV. VEHICULAR FATALITIES IN 1991-1992

Drug and Alcohol Involvement

METHOD	NO.	% WITH ALCOHOL*	AVE. ALC. CONC. (g%)	% WITH DRUGS*	% WITH DRUGS+ALC
PEDESTRIAN	37 (47%)	35	0.28	21	21
AUTO DRIVER	10 (13%)	67	0.22	12	12
AUTO PASSENGER	8 (10%)	33	0.16	0	0
MOTORCYCLE DRIVER	11 (14%)	73	0.09	11	11
MOTORCYCLE PASSENGER	4 (5%)	0	-	0	0
BICYCLE DRIVER	1 (1%)	0	-	0	0
BART	4 (5%)	25	0.13	50	25
OTHER/UNKNOWN	4 (5%)	0	-	50	0

* Refers to percentages of victims (of those tested) with positive blood ethyl alcohol levels.

** Refers to percentage of victims (of those tested) with positive blood tests for abuse drugs.

TABLE XVI. ABUSE DRUGS PRESENT IN VEHICULAR FATALITIES

	Drugs			
Situation	Cocaine	PCP	Heroin	Amphetamines
PEDESTRIAN	4	0	0	0
AUTO DRIVER	1	0	0	0
AUTO PASSENGER	0	0	0	0
MOTORCYCLE DRIVER	1	0	0	0
MOTORCYCLE PASSENGER	0	0	0	0
BICYCLE DRIVER	0	0	0	0
BART	1	0	1	0
UNKNOWN/OTHER	2	0	0	0
TOTALS	9	0	1	0

TABLE XVII. VEHICULAR FATALITIES BY AGE

Situation	Age 0-5	6-12	13-16	17-19	20-29	30-39	40-49	50-59	60-69	70-79	80+
AUTO DRIVER	0	0	0	0	3 (30%)	1 (10%)	3 (30%)	0	1 (10%)	1 (10%)	1 (10%)
AUTO PASSENGER	1 (13%)	0	1 (13%)	1 (13%)	3 (38%)	1 (13%)	1 (13%)	0	0	0	0
MOTORCYCLE DRIVER	0	0	0	0	7 (64%)	2 (18%)	2 (18%)	0	0	0	0
MOTORCYCLE PASSENGER	0	0	0	1 (25%)	3 (75%)	0	0	0	0	0	0
PEDESTRIAN	3 (8%)	0	0	0	2 (5%)	6 (16%)	6 (16%)	3 (8%)	2 (5%)	10 (27%)	5 (14%)
BICYCLE DRIVER	0	0	0	0	0	0	1 (100%)	0	0	0	0
BART	0	0	0	0	2 (50%)	2 (50%)	0	0	0	0	0
OTHER/UNKNOWN	0	0	0	0	2 (50%)	2 (50%)	0	0	0	0	0
TOTALS	4	0	1	2	22	14	13	3	3	11	6
% of total	(5%)		(1%)	(3%)	(28%)	(18%)	(16%)	(4%)	(4%)	(14%)	(8%)

* Row percents refer to percentages by age group for each situation. These can be compared to total percentages for each age group to see if a situation is more or less prevalent in any age group. For example, accidental deaths of auto passengers in the 0-16 year age group occur more frequently (26%) than the general involvement of this age group in vehicular fatalities (6%). Deaths of pedestrians in the 20-29 year age group occur less frequently (5%) than all vehicular fatalities in this age group (28%) while such deaths in the 70+ year age group occur much more frequently (41%) than the general involvement of this group in vehicular fatalities (22%).

VEHICULAR DEATHS BY AGE
FY 1991-92

Figure 17.

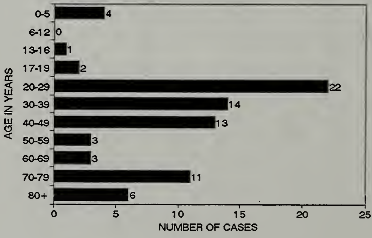


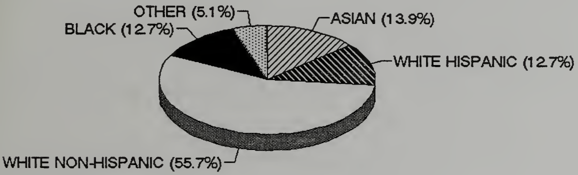
TABLE XVIII. DEMOGRAPHICS OF VEHICULAR FATALITIES

	Sex		Race					Age
Situation	%M	%F	%W-NH	%W-H	%B-NH	%A	%O	AVE. AGE
AUTO DRIVER	80	20	70	10	0	10	10	46
AUTO PASSENGER	88	12	38	12	38	12	0	24
MOTORCYCLE DRIVER	100	0	64	18	9	9	0	28
MOTORCYCLE PASSENGER	50	50	75	0	0	25	0	22
PEDESTRIAN	68	32	46	14	14	19	8	54
BICYCLE DRIVER	100	0	100	0	0	0	0	46
BART	100	0	75	0	25	0	0	30
OTHER/UNKNOWN	100	0	75	25	0	0	0	29
AVERAGE	78	22	57	13	13	14	4	42

The most notable change in demographics of vehicular fatalities from fiscal year 1990-91 was an increase in the percentage of motorcycle drivers who were white, from 60% in 1990-91 to 82% in 1991-92 and a concomitant decrease in motorcycle drivers who were black, from 30% in 1990-91 to 9% in 1991-92. The percentage of auto driver fatalities who were Asian decreased from 19% of the total in 1990-91 to 10% in 1991-92. Asians were also less heavily represented among pedestrian fatalities during 1991-92 (19%) than they were during 1990-91 (30%).

RACE OF VEHICULAR DEATH VICTIMS
FY 1991-92

Figure 18.



SUICIDES

The determination of suicide as a manner of death represents the summation of scene investigation, including a review of psychological state, autopsy, pathology, toxicology and, frequently, other investigation. To the best of our knowledge, ours is the only Medical Examiner's Office routinely performing toxicology testing on multiple organs and/or body fluids in order to evaluate the metabolic status of a drug or drugs.

Realizing the immense emotional impact on family, the diagnosis of suicide is never made lightly, and always represents a decision made on the basis of data sufficient to defend that decision in a court of law, if necessary. Should these data be inconclusive, the victim automatically gets the benefit of the doubt.

Suicide takes a tremendous toll of our young people. The relative number jumping from the Golden Gate bridge would not seem to warrant the publicity assigned them as compared to the evident need for help for individuals using other methods.

To help understand the problem, and hopefully, to aid in reduction of suicides, this office has supported suicide prevention and research programs for many years. It is hoped that this work will help to reduce this needless loss.

The majority of these deaths are situational reactions, and, if given momentary trained support, are potentially preventable.

SUICIDAL DEATHS

One hundred and fifty-three deaths were ruled to have been due to suicide during the 1991-92 fiscal year. However, the two motor vehicle deaths which were ruled to be by suicide are not included in the following tabulations; they were included under vehicular deaths. The number of individuals dying by each method of suicide are presented in Figure 19, page 43, and Table XIX, page 44, and the percentages of all suicidal deaths by type are indicated in Table XIX, page 44. Of those individuals dying by suicide who were tested for alcohol and drugs (i.e. in the hospital less than 24 hours), less than 50%, on the average, had positive blood tests for alcohol and/or drugs.

Abuse Drug Involvement (Table XX, page 44)

Abuse drugs were present in 20 cases of suicidal deaths in 1991-92 as compared to 10 cases in 1990-91. The abuse drugs seen most frequently in suicidal deaths were heroin (measured as morphine) (10 cases) and cocaine (8 cases). This contrasts with no cases of suicide with heroin present in 1990-91. Amphetamines and PCP were found in 1 case each of suicidal deaths in 1991-92. Abuse drugs were associated more frequently with deaths caused by firearms (4 cases) than with any other mode of suicide except for drug overdose. Abuse drugs may have played a role in suicidal deaths by hanging (3 cases), jumps from buildings (2 cases) and CO poisoning (1 case).

Racial Distribution (Table XXI and Figure 20, page 45)

Deaths from suicide occurred most frequently in whites (82% of total suicides). This was also true for all modes of suicide separately. The white racial group has been divided into Hispanic and non-Hispanic in this tabulation. It can be seen that the white Hispanic group was involved in only 7% of all suicides but in 13% of all suicides by hanging. The mode of hanging also was used more frequently by Asians (17%) than would have been expected by the overall percentage of suicides by Asians (12%).

Age Distribution (Table XXII, p. 46, Table XXIII, p. 47 and Figure 21, p. 47)

There were 2 deaths by suicide in the 13-16 year age group during this fiscal year as compared to 0 in 1990-91. There were 4 suicides in the 17-19 year age group, as compared to 2 in 1990-91. There was a 40% increase in the number of suicides in the 20-29 year age group (from 20 to 28 such deaths) as compared to the previous fiscal year. There was a 52% decrease in the number of suicides in the 50-59 year age group, from 29 in 1990-91 to 14 in 1991-92. The 30-39 year age group has the highest percentage of suicides of any age group with deaths from drug overdoses being particularly prevalent in this age group. Death by firearms appears to be the mode of suicide used most frequently by older adults with 29% of the deaths of those over age 60 being due to gunshot.

Distribution by Sex (Table XXIV, page 48)

Males were more likely than females to commit suicide in 1991-92 (78% male, 22% female).

SUICIDES

Suicides are self-inflicted deaths. In San Francisco, the 151 suicides which are being tabulated account for 9.6% of the Medical Examiner death investigations for the fiscal year of 1991-92.

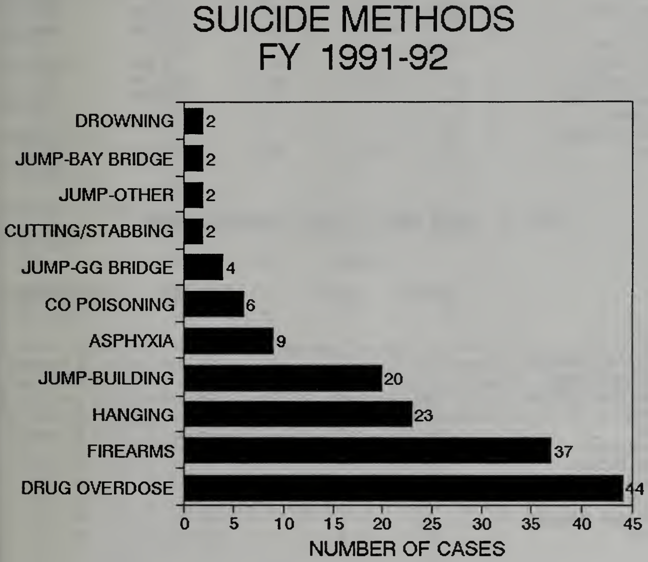


Figure 19.

TABLE XIX. SUICIDAL DEATHS BY MODE

Drug and Alcohol Involvement

METHOD	NUMBER	% OF TOTAL SUICIDES	% WITH ALCOHOL	AVE. ALC. CONC.(g%)	% WITH DRUGS
DRUG/POISON OVERDOSE	44	28.8	34	0.13%	-
FIREARMS	37	24.2	27	0.16%	24
HANGING	23	15.0	26	0.13%	30
JUMP-BUILDING	20	13.1	20	0.22%	24
ASPHYXIA/ SUFFOCATION	9	5.9	33	0.16%	44
CO POISONING	6	3.9	50	0.14%	50
JUMP-GG BRIDGE	4	2.6	50	0.15%	25
JUMP-BAY BRIDGE	2	1.3	50	0.06%	-
JUMP-OTHER	2	1.3	0	-	0
CUTTING/STABBING	2	1.3	0	-	0
DROWNING	2	1.3	50	0.04%	100

TABLE XX. ABUSE DRUGS PRESENT IN SUICIDAL DEATHS

	Drugs			
Situation	Cocaine	PCP	Morphine	Amphetamines
ASPHYXIA/SUFFOCATION	0	0	0	0
AUTO/CO POISONING	1	0	0	0
CUTTING/STABBING	0	0	0	0
FIREARMS	3	1	0	0
HANGING	1	0	1	1
JUMP-BUILDING	1	0	1	0
JUMP-GG BRIDGE	0	0	0	0
JUMP-BAY BRIDGE	0	0	0	0
JUMP-OTHER	0	0	0	0
DRUG/POISON OVERDOSE	2	0	8	0
DROWNING	0	0	0	0
TOTALS	8	1	10	1

TABLE XXI. SUICIDE METHODS BY RACE

Method	Race					Total
	W-NH	W-H	B-NH	Asian	Other	
Asphyxia/Strang.	8 (89%)	0	0	0	1 (11%)	9
CO Poisoning	4 (67%)	0	1 (17%)	1 (17%)	0	6
Cutting/Stabbing	1 (50%)	0	0	1 (50%)	0	2
Drug/Poison OD	36 (82%)	0	2 (5%)	6 (14%)	0	44
Drowning	1 (50%)	0	0	1 (50%)	0	2
Firearms	28 (76%)	3 (8%)	4 (11%)	2 (5%)	0	37
Hanging	16 (70%)	3 (13%)	0	4 (17%)	0	23
Jump-Building	13 (65%)	2 (10%)	2 (10%)	3 (15%)	0	20
Jump-GG Brdg	4 (100%)	0	0	0	0	4
Jump-Bay Bridge	1 (50%)	1 (50%)	0	0	0	2
Jump-Other	1 (50%)	1 (50%)	0	0		2
TOTALS (NO.)	113	10	9	18	1	151
% OF TOTALS	75%	7%	6%	12%	1%	

* Row percentages refer to percentages by race for each method. These can be compared to total percentages for each race to see whether a method is more or less prevalent in a racial group. For instance, suicides by hanging appear to occur more frequently in Asians (17%) than the general involvement of Asians in suicides (12%), and deaths by hanging in white/Hispanics (13%) occur more frequently than all suicides in white/Hispanics (7%).

RACE OF SUICIDE VICTIMS
FY 1991-92

Figure 20.

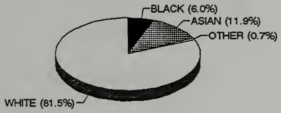


TABLE XXII. SUICIDE METHODS BY AGE

	Age									
Method	13-16	17-19	20-29	30-39	40-49	50-59	60-69	70-79	80-89	90-99
Asphyxia/Suffoc.	0	0	1 (11%)	0	3 (33%)	0	2 (22%)	3 (33%)	0	0
CO Poisoning	0	0	0	2 (33%)	2 (33%)	1 (17%)	1 (17%)	0	0	0
Cutting/Stabbing	0	0	0	0	0	1 (50%)	1 (50%)	0	0	0
Drowning	0	0	0	0	0	1 (50%)	0	0	1 (50%)	0
Drug/Poison O.D.	1 (2%)	1 (2%)	5 (11%)	14 (32%)	11 (25%)	5 (11%)	2 (5%)	4 (9%)	0	1 (2%)
Firearms	0	1 (3%)	8 (22%)	5 (14%)	7 (19%)	4 (11%)	3 (8%)	3 (8%)	4 (11%)	2 (5%)
Hanging	1 (4%)	0	6 (26%)	6 (26%)	2 (9%)	1 (4%)	2 (9%)	3 (8%)	2 (9%)	0
Jump-Building	0	1 (5%)	4 (20%)	4 (20%)	3 (15%)	1 (5%)	1 (5%)	4 (20%)	2 (10%)	0
Jump-GG Bridge	0	0	1 (25%)	1 (25%)	2 (50%)	0	0	0	0	0
Jump-Bay Bridge	0	1 (50%)	1 (50%)	0	0	0	0	0	0	0
Jump-Other	0	0	0	2 (100%)	0	0	0	0	0	0
TOTAL NO.	2	4	28	34	30	14	12	17	9	3
% OF TOTAL	1%	3%	18%	22%	20%	9%	8%	11%	6%	2%

* Row percents refer to percentage by age range for each method. These can be compared to total percentages for each age range to see if a method is more or less prevalent in an age group. For example, hanging appears to occur more frequently in the 20-29 years of age group (26%) than the general involvement of this age group in suicides (18%) while deaths by hanging in the 40-49 year age group (9%) occur less frequently than all suicides in this age group (20%).

SUICIDES

TABLE XXIII. AGE RANGES - COMPARISON BY YEAR

Age Range	'84-'85	'85-'86	'86-'87	'87-'88	'88-'89	'89-'90	'90-'91	'91-'92
0 - 19	7	7	2	6	3	1	2	6
20 - 29	27	29	22	36	30	18	20	28
30 - 39	37	46	45	28	33	39	37	34
40 - 49	25	18	28	24	28	30	23	30
50 - 59	20	18	30	23	22	12	29	14
60 - 69	21	19	20	19	19	11	15	12
70 - 79	15	12	12	17	21	6	19	17
80 - 89	4	10	9	5	11	7	8	9
90 - 99	2	2	3	4	3	4	1	3
Unknown	0	0	0	0	1	0	0	0

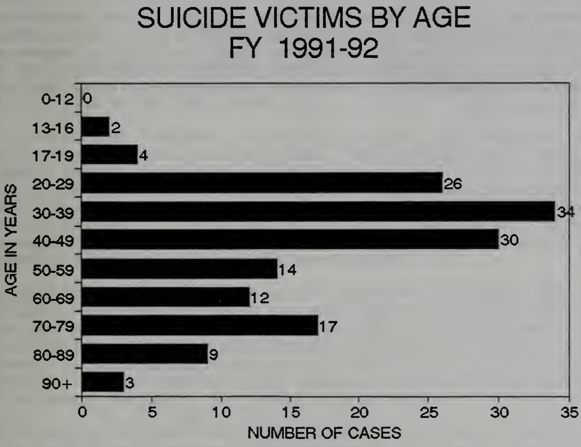


Figure 21.

TABLE XXIV. SUICIDE METHODS BY SEX

Method	Male	Female
Asphyxia/Suffocation	6 (67%)	3 (33%)
CO Poisoning	6 (100%)	0 (0%)
Cutting/Stabbing	1 (50%)	1 (50%)
Drowning	1 (50%)	1 (50%)
Drug/Poison Overdose	31 (70%)	13 (30%)
Firearms	30 (81%)	7 (19%)
Hanging	19 (83%)	4 (17%)
Jump-Building	17 (85%)	3 (15%)
Jump-GG Bridge	4 (100%)	0 (0%)
Jump-Bay Bridge	1 (50%)	1 (50%)
Jump-Other	2 (100%)	0 (0%)
TOTALS	118 (78%)	33 (22%)

* Row percents refer to percentages by sex for each mode. These can be compared to total percentages for each sex to see whether a mode is more or less prevalent in one sex. For example, deaths by jumps from buildings appear to occur more frequently in males (85%) than the general involvement of males in suicides (78%), while females die by hanging less frequently (17%) than all suicides in females (22%).

HOMICIDE

Homicide is the killing of one human being by another. Murder is the unlawful killing of a human being with malice. The following data do not differentiate homicide as to whether it was justifiable, accidental, or murder. Such distinctions are the proper function of the judicial system and are not the responsibility or function of this office.

Any judicial system which deals with crimes involving death requires a well-trained staff and well-equipped Medical Examiner's Office which can and will interpret forensic findings in an unbiased, fair manner. Their investigation must be intense, accurate and rapid enough so that charges may be pursued or dismissed without unfairly affecting an individual's constitutional rights. This is the purpose of this office.

The proper evaluation and investigation of a homicide begins, naturally, at the scene. In the majority of cases, a staff member of this office (either the Investigator, Administrative Coroner, or Medical Examiner), determines whether a death is potentially a homicide. It has been well-documented that, if such a determination is made by an individual inexperienced or untrained in death investigation, his opinion will be wrong in 50% of the cases. Such a person is very apt to miss the subtle homicide and is more inclined to miscall a natural or accidental death as homicide, resulting in false arrest, false accusations, needless expenditure of public funds, waste of investigative time and delay in the investigation of other deaths.

The Investigator responds to the scene of death and determines whether the Police Homicide Detail will be called. When homicide is obvious, the Investigator responds as part of a team (other members include homicide investigators, photographers and criminologists). This office is responsible for the body, identification, inquiry into circumstances, manner and means of death (Gov. Code 27491.2). In addition to the scene investigation, the Investigator is responsible for recovering property, locating and notifying next of kin, and preparing a written summary of his investigation.

In about one-third to one-half of all homicides, a forensic pathologist will respond to the scene and aid in the investigation. The subsequent autopsy may also use photography, fluoroscopy, X-ray, angiography and other techniques to establish and define the number, nature and severity of wounds, to obtain evidence (i.e. bullets) and to prepare an official report. This report, including chemistry, serology and toxicology results, is used as part of the prosecution or defense of the case in the formal judicial hearing.

Pertaining to criminal trial, our judicial system requires identification of an individual and presentation of evidence, usually by virtue of expert testimony, relative to the cause of death or trauma associated with death. The Medical Examiner's Office identifies the body, frequently relying on local police, CII, or FBI fingerprints. Expert forensic testimony is given by

the Forensic Pathologist from this office. In addition, the Forensic Toxicologist is frequently called upon to testify on the significance and effect of various drug levels, a matter of great importance when dealing with the concept of diminished capacity.

Of minor, but increasing importance, is the fact we are seeing more homicide and trauma cases transferred into the County for medical therapy because of San Francisco's excellent and advanced medical facilities. Should these individuals die, the autopsy and court testimony are done by this office.

HOMICIDE DEATHS

One hundred and thirty-eight deaths were ruled to have been due to homicide during the 1991-92 fiscal year. Of these, 15 were vehicular homicides and have been discussed in the "Vehicular Deaths" section. The remaining 123 homicide deaths are the basis for the tabulations in this section. The number of individuals dying by each manner of death are indicated in Figure 22, page 52 and Table XXV, page 53; percentages of all homicides represented by specific methods are indicated in Table XXV, page 53. The total number of non-vehicular homicides increased by 31% from 94 in 1990-91 to 123 in 1991-92). The number of homicide deaths by firearms increased 40%, from 50 to 70. Of the homicide victims tested for alcohol and drugs (those in the hospital for less than 24 hours), a large percentage had positive blood alcohol levels as well as having drugs present. The percent of homicide victims with positive blood tests for drugs varied with the method of homicide with 43% of those dying by firearms and 36% of those dying from stabbing having drugs present.

Abuse Drug Involvement (Table XXVI, page 53)

Cocaine was the abuse drug seen most frequently in homicide victims, being found in 42 homicide cases or 35% (42/120) of all non-vehicular homicides, as compared to 25% of such cases in the previous fiscal year. Cocaine was associated most strongly with deaths by gunshot wound, with 26 of the 42 cases with cocaine present (62%) being deaths due to gunshot wound. Stabbing was the homicide method which was associated with drugs next most frequently to gunshot wound. Cocaine was present in 10 cases who died by stabbing.

Racial Distribution (Table XXVII and Figure 23, page 54)

Overall, deaths by homicide occurred most frequently in blacks (45%) followed closely in frequency by whites (43%). Deaths by stabbing occurred with a greater frequency in blacks (55%) than in either whites (35%) or Asians (5%). Deaths by gunshot occurred more frequently in white/Hispanics (26% of all gunshot deaths) than would have been predicted by the overall involvement of white/Hispanics in homicides of all types (18%) and less frequently in white/non-Hispanics (16%) than would have been predicted by their involvement in homicides of all types (25%).

Age Distribution (Fig. 24, p. 55, Tables XVIII and XXIX, p. 56 and Table XXXI, p. 57)

There were 19 homicides in the 0-19 year age group, an increase of 46% from 1990-91. Death by firearms accounted for 14 or 74% of these homicides. The peak occurrence of deaths due to firearms was in the 20-29 year age group and of those due to stabbing, in the 30-39 year age group. Of deaths due to firearms, 69% were in the 20-39 year age group as were 60% of the stabbing deaths. There were 6 homicides in individuals over the age of 80 during 1991-92. As can be seen from Table XXXI, the mean age of homicide victims varies with the mode, with no clear pattern observed for both males and females for any mode.

Distribution by Sex (Table XXX, page 57)

Males were more than 3.5 times as likely to be homicide victims as females.

NON-VEHICULAR HOMICIDES

Homicides are those deaths caused by another person, generally resulting in murder and manslaughter charges. In San Francisco, 123 non-vehicular homicides occurred in 1991-92, accounting for 8% of the total Medical Examiner investigations.

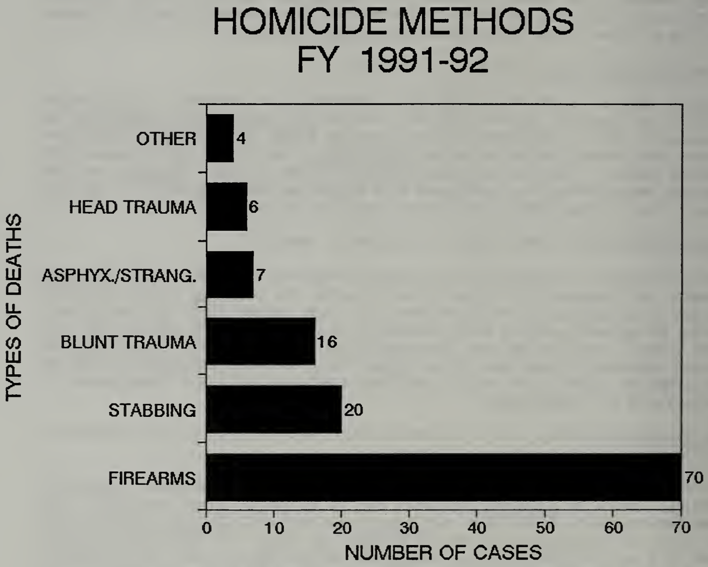


Figure 22.

TABLE XXV. HOMICIDAL DEATHS BY MODE

Drug and Alcohol Involvement

METHOD	NUMBER	% OF TOTAL HOMICIDES	% WITH ALCOHOL*	AVE. ALC. CONC.(g%)	% WITH DRUGS**
FIREARMS	70	51	43	0.12%	41
STABBING	20	14	36	0.17%	58
BLUNT TRAUMA	16	12	31	0.13%	31
ASPHYXIA/ STRANGULATION	7	5	43	0.25%	29
HEAD TRAUMA	6	4	67	0.24%	33
OTHER	4	3	25	0.07%	25

* Refers to percentage of victims (of those tested) with positive blood ethyl alcohol concentrations

** Refers to percentage of victims (of those tested) with positive blood tests for abuse drugs.

TABLE XXVI. DRUGS PRESENT IN NON-VEHICULAR HOMICIDAL DEATHS

	Drugs			
	Cocaine	PCP	Heroin	Amphetamines
Situation				
ASPHYXIA/STRANGULATION	1	0	0	0
MULTIPLE TRAUM. INJURIES	5	0	2	0
GUNSHOT WOUND	26	0	2	0
STABBING	10	0	0	0
OTHER	0	0	0	0
TOTALS	42	0	4	0

TABLE XVII. HOMICIDE METHODS BY RACE

	Race					
Method	W-NH	W-H	B-NH	Asian	Other	Total
Asphyxia/Strang.	3 (43%)	0	4 (57%)	0	0	7
Head Trauma	6 (100%)	0	0	0	0	6
Firearms	11 (16%)	18 (26%)	30 (43%)	9 (13%)	2 (3%)	70
Stabbing	4 (20%)	3 (15%)	11 (55%)	1 (5%)	1 (5%)	20
Blunt Trauma	5 (31%)	1 (6%)	9 (56%)	1 (6%)	0	16
Other	2 (50%)	0	1 (25%)	1 (25%)	0	4
TOTALS	31	22	55	12	3	123
% OF TOTAL	25%	18%	45%	10%	2%	

* Row percentages refer to percentages by race for each method. These can be compared to total percentages for each race to see whether a method is more or less prevalent in a racial group. For instance, death by firearms appears to occur more frequently in white/Hispanics (26%) than the general involvement of white/Hispanics in homicides (18%) while deaths due to stabbing appear to occur less frequently in Asians (5%) than all homicides in Asians (10%).

RACE OF HOMICIDE VICTIMS
FY 1991-92

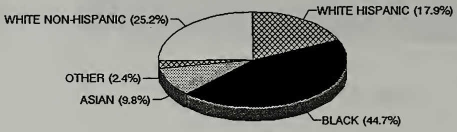


Figure 23.

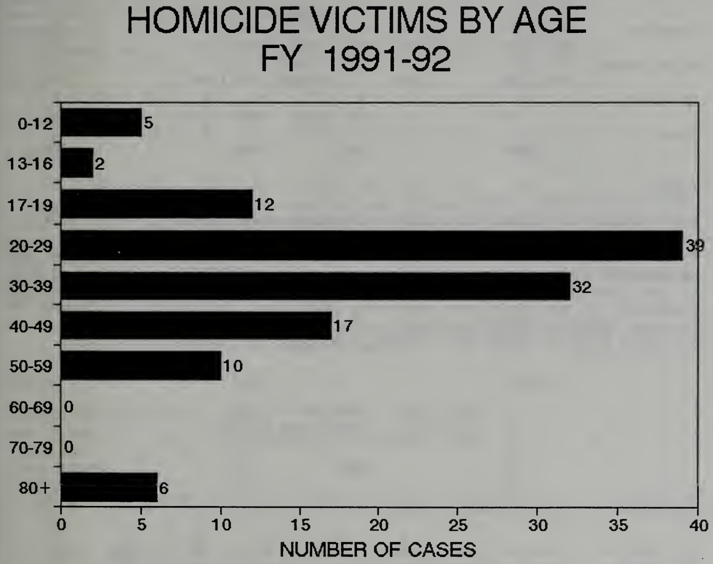

HOMICIDE VICTIMS BY AGE
FY 1991-92
0-12
13-16
17-19
20-29
30-39
40-49
50-59
60-69
70-79
80+
5
2
12
39
32
17
10
0
0
6
0
5
10
15
20
25
30
35
40
NUMBER OF CASES

Figure 24.

TABLE XVIII. HOMICIDE METHODS BY AGE

Method	Age 0-12	13-16	17-19	20-29	30-39	40-49	50-59	60-69	70-79	80+
Asphyxia/Strang.	1 (14%)	0	0	1 (14%)	3 (43%)	2 (29%)	0	0	0	0
Head Trauma	0	0	0	0	2 (33%)	1 (17%)	3 (50%)	0	0	0
Firearms	1 (1%)	2 (3%)	11 (16%)	31 (44%)	17 (24%)	4 (6%)	3 (4%)	0	0	1 (1%)
Blunt Trauma	2 (12%)	0	2 (12%)	0	3 (15%)	5 (25%)	2 (12%)	0	0	2 (12%)
Stabbing	0	0	0	5 (25%)	7 (35%)	4 (6%)	2 (3%)	0	0	2 (3%)
Other	1 (25%)	0	0	1 (25%)	0	1 (25%)	0	0	0	1 (25%)
TOTALS	5	2	13	38	32	17	10	0	0	6
% OF TOTALS	(4%)	(2%)	(11%)	(31%)	(26%)	(14%)	(8%)			(5%)

* Row percents refer to percentage by age range for each method. These can be compared to total percentages for each age range to see if a method is more or less prevalent in an age group. For example, deaths by firearms occur more frequently in the 20-29 year age group (44%) than the general involvement of this age group in homicides (31%) while such deaths occur less frequently in the 40-49 year age group (6%) than all homicides in this age group (14%).

TABLE XXIX. HOMICIDE VICTIMS
AGE RANGES - COMPARISON BY YEAR

Age range	YEAR '84-'85	'85-'86	'86-'87	'87-'88	'88-'89	'89-'90	'90-'91	'91-'92
0 - 19	8	9	8	16	18	16	13	19
20 - 29	30	40	28	28	31	28	37	39
30 - 39	22	27	27	41	28	28	27	32
40 - 49	10	18	18	12	15	15	12	17
50 - 59	10	7	11	13	9	6	5	10
60 - 69	5	4	8	8	4	5	5	0
70 and above	10	15	10	5	2	6	5	6

TABLE XXX. HOMICIDE METHODS BY SEX

Method	Male	Female
Asphyxia/Strangulation	3 (43%)	4 (57%)
Head Trauma	5 (83%)	1 (17%)
Firearms	59 (84%)	11 (16%)
Mult. Traum. Inj.	11 (69%)	5 (31%)
Stabbing	17 (85%)	3 (15%)
Other	2 (50%)	2 (50%)
TOTALS	97	26
% OF TOTALS	(79%)	(21%)

* Row percents refer to percentages by sex for each mode. These can be compared to total percentages for each sex to see whether a mode is more or less prevalent in one sex. For example, deaths from asphyxia/strangulation occur more frequently in females (57%) than the general involvement of females in homicides (21%), while deaths from asphyxia/strangulation in males (43%) occur less frequently than all homicides in males (79%).

TABLE XXXI. MEAN AGE FOR HOMICIDE VICTIMS BY METHOD AND SEX
(Age in Years)

Method	Male	Female
Asphyxia/Strangulation	28	35
Head Trauma	50	36
Firearms	26	38
Blunt Trauma	45	27
Stabbing	40	47
Other	30	31

The lowest mean age for males (except for the "Other" category") was seen in deaths by firearms. The lowest mean age for females was seen in victims of blunt trauma.

PATHOLOGY

In the Pathology Department, tissue and body fluid samples taken at autopsy are prepared for microscopic study, histochemically stained, or analyzed for chemical constituents. Cardiac pacemakers or other mechanical life-support devices are examined for any defect. Smears or "wet-mounts" are examined for spermatozoa, bacteria, or tuberculosis. Bacteriologic cultures may be taken. However, if pathogens are grown, they are usually sent to the Department of Public Health (State or local) for further identification. If indicated, "soft" X-rays or histochemical tests are done to establish entrance or exit gunshot wounds. New research techniques, such as methods of obtaining fingerprints from the skin of a victim, are developed here also.

MONTHLY FIGURES

1991-1992

PATHOLOGY*

YEAR	TOTAL MED-EXAM CASES	CASES REFERRED TO PATHOLOGIST	NO. OF ORGANS SUBMITTED	NO. OF SECTIONS TAKEN	HISTO PATHOLOGIC SLIDES MADE	SPECIAL STAINS **	BLOOD TYPINGS ***	OTHER DETER TIONS
1991								
JUL	125	91	555	1461	786	131	50	236
AUG	127	91	552	1217	608	116	66	295
SEP	120	86	489	1066	531	74	59	289
OCT	130	96	447	1082	501	82	41	254
NOV	118	71	373	897	495	25	51	259
DEC	150	122	575	1368	722	119	57	349
1992								
JAN	166	118	400	894	430	107	51	247
FEB	128	92	563	1304	680	52	44	289
MAR	116	95	399	792	410	110	63	397
APR	121	86	391	884	445	100	30	133
MAY	122	82	415	803	442	102	52	191
JUN	134	97	426	859	452	100	51	74
TOTALS	1557	1127	5585	12627	6502	1118	615	3013

* These figures do not reflect photography, forensic radiology, or material prepared for teaching forensic pathology

** Includes smears examined for bacteria and spermatozoa

*** ABO and Anti-Rh

**** Blood, urine, water, evidence for: hematology, biochemistry, urinalysis, bacteriology, serology, "Sickledix," etc. + blood drawing

TOXICOLOGY

Toxicology is the study of the interaction of foreign compounds, such as drugs, with living organisms (e.g. people). It involves knowing something of the nature of that interaction, how the foreign compounds break down (that is, how they are metabolized), and what effects they have on the health and behavior of the organism.

All of this information is vital to the role that toxicology plays in determining the cause of death, as well as in evaluating the significance of chemicals found in the living.

Generated within the Toxicology Department is information on samples from Medical Examiner's cases as well as from suspects in criminal cases (e.g.. homicides, driving under the influence, probation failure, (H & S 11550), assaults) and other persons to be tested at the request of various law enforcement agencies. The data obtained in these cases enable the toxicologist to assist in interpreting the behavior of the suspects involved, to advise the District Attorney, the Public Defender, the City Attorney, Police Department, the California Highway Patrol, and other agencies, and to give expert testimony in court as necessary in such cases as to the effect of drugs in the case. This application of toxicological facts to legal problems is Forensic Toxicology.

The Toxicology Department also performs analyses on samples submitted by the Police and Fire Departments in connection with the recruitment programs and other personnel requirements. The results in some cases are presented to the respective commission in official hearings. (For total cases submitted for testing and number of tests performed for 1990-91 and 1991-92, see Figures 25 and 26, respectively, on page 63).

Toxicological facts are determined through tests performed on biological samples (e.g. blood, urine, gastric contents, liver, etc.) taken at the time of autopsy or from living persons. The samples are subjected to a series of chemical manipulations designed to extract any drugs or other physiologically active compounds that may be present. The subsequent extracts are then examined by equipment set up to detect, accurately identify, and quantitate any materials that may be present. These determinations must be of unquestionable accuracy and as specific as scientifically possible, and they must be able to stand up to review by any other qualified laboratory in the nation.

The analytical methods most commonly used in the toxicological studies are gas and thin layer chromatography; ultraviolet, visible, and fluorescence spectrophotometry; and immunoassay techniques. Advanced techniques, such as mass spectrometry and HPLC (High Performance Liquid Chromatography) are used as necessary for confirmation of difficult samples. These precise and sophisticated methods require the use of advanced laboratory apparatus and highly trained personnel.

Levels of drugs in two or more body compartments (one of which is invariably blood) are routinely determined in order to answer the question of whether the drug use is acute or chronic. This approach is of the utmost importance in determining the time of ingestion and whether or not the intent of the ingestion was suicide.

The range of drugs available to the public is extremely wide, and the nature and type of compounds involved are highly variable. The methodologies necessary to conduct toxicological analyses have to be similarly wide-ranging and also continually expanded in order to keep up with the manufacture of new drugs, both legal and illegal. This is an important aspect of the Toxicology Department's work, often requiring extensive research. So, too, does the identification of "street-manufactured" compounds which are sometimes found in post-mortem samples. Also, with many drugs being compounded to have physiologic effects at very low doses, detection in body fluids is often extremely difficult.

The most common drugs in the community are alcohol and prescription items. However, illegal, or "street", drugs (especially morphine-type alkaloids [e.g. heroin], cocaine, and amphetamines) represent a very significant percentage of the compounds actually found in the cases presented to the Toxicology Department. Less commonly used drugs, industrial materials, certain gases, and various other foreign compounds have also been detected.

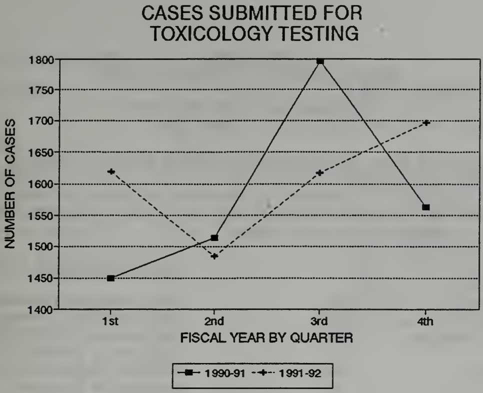


Figure 25.

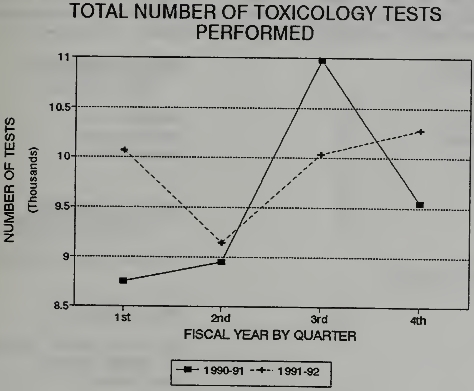


Figure 26.

TOXICOLOGY
MEDICAL EXAMINER - CORONER'S CASES

SAN FRANCISCO CITY AND COUNTY
July 1991 - June 1992

Incidence of drugs and other physiologically active material detected

The compounds listed are not necessarily the cause of death nor even a contribut factor. They are the toxic agents that were found to be present, either singly in combination, in Medical Examiner's cases.

ABUSE DRUGS

Cocaine	160
Benzoylecgonine	162*
Morphine-type alkaloids	114
Codeine	57
Methamphetamine	20
Amphetamine	19
Phencyclidine (PCP)	2

ANTI-DEPRESSANTS

Amitriptyline (Elavil)	21
Nortriptyline (Aventyl)	21
Desipramine (Norpramin)	10
Imipramine (Tofranil)	5
Doxepin (Sinequan)	6
Fluoxetine (Prozac)	6
Maprotilene (Ludiomil)	1
Trimipramine (Surmontil)	2
Clomipramine (Anafranil)	1

*Benzoylecgonine is not a drug of abuse. It is a metabolite of cocaine and generally present when cocaine is detected. In some cases, benzoylecgonine, but cocaine, was found which indicated that there had been some exposure to cocaine.

ANALGESICS - NARCOTIC

Methadone	26
Methadone Metabolite	21
Propoxyphene (Darvon)	9
Norpropoxyphene	5
Meperidine	2
Hydrocodone	3
Hydromorphone	2
Oxycodone	4

ANALGESICS - NON-NARCOTIC

Acetaminophen	10
Salicylates	2

CARDIAC DRUGS

Lidocaine	85
Propranolol (Inderal)	2
Verapamil	2

SEDATIVE-HYPNOTICS
Barbiturates

Secobarbital	1
Pentobarbital	7
Phenobarbital	19

SEDATIVE-HYPNOTICS
Non-Barbiturates

Chloral Hydrate metabolite	1

ANTIHISTAMINES

Diphenhydramine (Benadryl)	25
Chlorpheniramine	4
Doxylamine	6

DECONGESTANTS

Phenylpropanolamine	2

Drugs Detected, Continued

BRONCHODILATORS

Ephedrine	7
Theophylline	3

ANTICONVULSANTS

Diphenylhydantoin (Dilantin)	7
Carbamazepine (Tegretol)	3

ANTIPSYCHOTIC AGENTS

Thioridazine (Mellaril)	1

MISCELLANEOUS

Carbon Monoxide	17
Acetone	6
Methane	1
Disulfiram	1
Quinine	2
Pine Oil	1

MUSCLE RELAXANTS

Carisoprodel (Soma)	1

ANTI-ANXIETY AGENTS

Diazepam (Valium)	35
Nordiazepam	27
Chlordiazepoxide (Librium)	14
Alprazolam (Xanax)	1
N-Desalkylflurazepam	1
Lorazepam (Ativan)	2
Temazepam (Restoril)	3

TOXICOLOGY

MEDICAL EXAMINER'S CASES

SAN FRANCISCO COUNTY
July 1991 - June 1992

Year/ Month	No. of Cases Referred to Toxicology	No. of Specimens Received	No. of Tests Performed	No. of Tests Per Case	Alcohol Tested	Pos.	% Pos.
1991							
JUL	127	1057	994	7.8	117	30	25.6
AUG	124	992	930	7.5	104	23	22.1
SEP	127	1,001	927	7.3	117	28	23.9
OCT	126	992	875	6.0	104	20	19.2
NOV	105	798	768	7.3	93	27	29.0
DEC	168	1,297	1,281	7.6	138	37	26.8
1992							
JAN	161	1,297	1,198	7.4	126	39	31.0
FEB	125	971	893	7.1	102	24	23.5
MAR	121	981	890	7.4	107	25	23.4
APR	121	974	875	7.2	105	20	19.1
MAY	121	935	895	7.4	97	29	29.9
JUN	136	1,055	942	6.9	119	22	18.5
TOTAL	1,562	12,350	11,468	7.3	1,329	324	24.4

TOXICOLOGY

FORENSIC TOXICOLOGY CASES
JULY 1991 - JUNE 1992

Cases in which specimens were referred to the Medical Examiner's Toxicology Laboratory for forensic toxicological examination generally were criminal cases in which the presence of drugs was suspected either in the victim or suspect of the crime. Testing of 11550, probation, DUI, management control, out-of-county and other miscellaneous cases is included in this tabulation.

YEAR/MONTH	No. Cases Referred to Toxicology	No. of Specimens Received	No. Of Tests Performed
1991			
JUL	458	557	2,665
AUG	421	559	2,459
SEP	363	462	2,097
OCT	385	495	2,200
NOV	296	414	1,716
DEC	405	532	2,306
1992			
JAN	431	559	2,401
FEB	361	482	2,100
MAR	418	513	2,547
APR	418	551	2,242
MAY	408	492	2,307
JUN	526	658	3,107
TOTAL	4,890	6,274	28,057

TOXICOLOGY

FORENSIC TOXICOLOGY CASES
JULY 1991 - JUNE 1992

Incidence of drugs detected in all cases submitted to the Medical Examiner - Coroner's Office Toxicology Laboratory for forensic toxicological examination.

The samples in which these compounds were found to be present, either singly or in combination, were generally obtained from either suspects or victims in criminal cases, probationers or via management control investigatons.

TYPE OF CASE

Drug	11550	DUI	Probation	Other*
Ethyl alcohol	1	289	-	30
Cocaine	216	107	545	17
Benzoylecgonine	216	107	799	17
Morphine-type alkaloids	85	20	49	3
Methamphetamine	34	28	28	3
Amphetamine	34	28	24	1
Codeine	4	20	9	2
Phencyclidine (PCP)	5	14	1	-
Ephedrine	1	-	-	10
MDMA	1	2	-	-
Methadone	-	9	-	-
Methadone metabolite	-	9	-	-
Phenylpropanolamine	-	1	-	5
Delta-9-Tetrahydro-cannabinol	-	14	108	-
11-Nor-Delta-9-THC-Carboxylic Acid	-	14	284	-
Diazepam	-	-	-	1
Nordiazepam	-	-	-	1
Lidocaine	-	6	-	1
Amitriptyline	-	2	-	-
Prazepam	-	2	-	-
Trazadone	-	1	-	-
Prochlorperazine	-	1	-	-
Meprobamate	-	2	-	-
Butabarbital	-	2	-	-
Phenobarbital	-	1	-	-
Chlordiazepoxide	-	1	-	-
Hydrocodone	-	-	1	-
Diphenhydramine	-	1	-	1

* "Other" includes testing of homicide suspects, suspects and victims in other criminal cases, and Sheriff, Police and Fire Department recruits, management controls, out-of-county cases, and other miscellaneous cases.

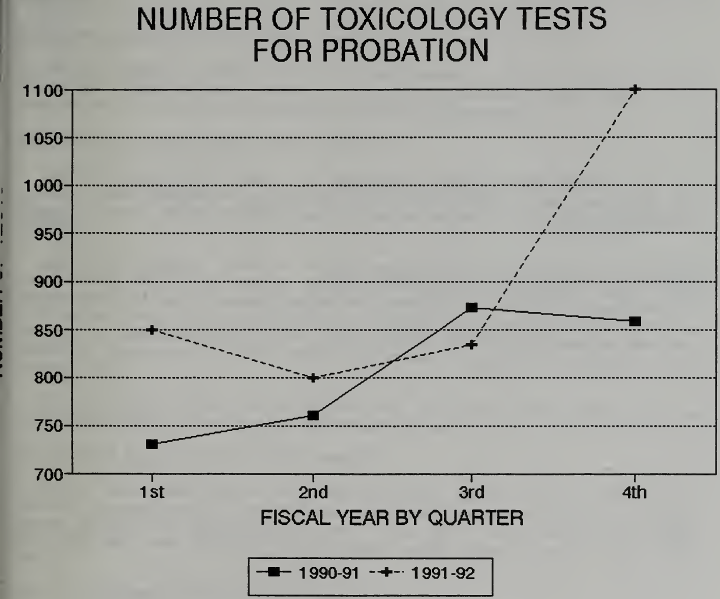

NUMBER OF TOXICOLOGY TESTS FOR PROBATION
1100
1050
1000
950
900
850
800
750
700
1st
2nd
3rd
4th
FISCAL YEAR BY QUARTER
1990-91
1991-92

Figure 27.

ABUSE DRUGS

The role of abuse drugs in deaths during the 1991-92 fiscal year is presented in this section. The four abuse drugs most commonly seen in Medical Examiner's cases - cocaine, heroin, amphetamines and PCP - will be examined. The number of cases in which these drugs were found either alone or in combination with other abuse drugs are presented in Table XXXII, page 73. In drug caused deaths, heroin was the most frequently observed drug of abuse where drugs were present alone and cocaine was the most frequently observed when drugs were present in combination.

Distribution by Sex (Table XXXIII, page 74)

In deaths caused by abuse drugs (DC = drug caused) or deaths related to abuse drugs (DR = drug related), where the drugs were present either singly or in combination, 60-100% of the deceased individuals were males.

Distribution by Race (Table XXXIII, page 74)

White/Non-Hispanic (W-NH) - In drug-caused deaths where abuse drugs were present either singly or in combination with other abuse drugs, the white non-Hispanic racial group predominated in deaths caused by heroin, amphetamines, and PCP.

Black/Non-Hispanic (B-NH) - In drug-caused deaths and drug-related deaths where abuse drugs were present singly, the black non-Hispanic racial group predominated in deaths where cocaine was present (41% and 45%, respectively). This racial group also predominated in drug-related deaths where cocaine was present in combination with other drugs (73%). Black/non-Hispanics were only minimally represented in drug-caused deaths where heroin or amphetamines were present alone.

White/Hispanic (W-H) - This racial group was most heavily represented in drug-related deaths where heroin was present alone.

Distribution by Age (Table XXXIII, page 74)

In deaths where abuse drugs were present singly, there were some notable differences in mean ages of the victims. The lowest mean age was seen in drug-caused deaths with amphetamines present alone (26.8 years) while the highest mean age was seen in drug-related deaths with heroin present alone (49.3 years).

Alcohol Involvement (Table XXXIII, page 74)

The presence of alcohol in the blood of abuse drugs users was most often associated with deaths related to heroin alone (73%) and was least associated with deaths due to amphetamines alone (0%).

Deaths Involving Cocaine (Figure 28, p. 75 and Tables XXXIV and XXXV, p. 77)

Cocaine alone was the cause of death in 22 cases by overdose, a 22% increase from the previous fiscal year (18 cases). Cocaine alone was also present in 60 drug-related deaths (See Table XXXIV) including 11 ruled to be accidental, 5 ruled to be by suicide and 37 ruled to be by homicide. Notably, 38 of these 60 deaths (63%) were due to gunshot or stabbing.

Cocaine in combination with other drugs was the cause of death in 48 cases by overdose, a 50% increase from 1990-91! Cocaine in combination was also present in 10 drug-related deaths (See Table XXXV) including 3 cases ruled to be accidental, 1 case ruled to be by suicide, and 6 cases ruled to be by homicide. Of these 10 deaths, 4 (25%) were due to gunshot or stabbing.

The number of deaths due to cocaine over the last 7 fiscal years is shown in Figure 24. It can be seen that the number of deaths due to cocaine increased in 1991-92 after a slight decrease in 1990-91.

Deaths Involving Heroin (Figure 28, page 75 and Table XXXVI, page 79)

Heroin alone was the cause of death in 37 cases by overdose, an 85% increase from the preceding fiscal year total of 20 cases. Heroin alone also was present in 3 drug-related deaths. The involvement of heroin alone in drug-related deaths was very low as compared to the involvement of cocaine in this type of death, both in number and manners of death.

Heroin in combination with other drugs was the cause of death in 40 cases by overdose, a 43% increase from the previous fiscal year total of 28 cases. Heroin in combination was present in 6 drug-related deaths, 2 of which (33%) was due to gunshot wounds.

The numbers of deaths due to heroin over the last 19 fiscal years are shown in Figure 29, page 78. The number of such deaths for 1991-92 is the fourth highest seen during the last 19 fiscal years.

Deaths Involving Amphetamines (Table XXXVII, page 80)

Amphetamines alone were the cause of death in 5 cases by overdose, a 67% increase over the previous fiscal year. Amphetamines alone were also present in 3 drug-related deaths.

Amphetamines in combination with other drugs were the cause of death in 9 cases by overdose, an increase of 29% over the previous fiscal year. Amphetamines in combination with other drugs were present in no drug-related deaths.

Abuse Drugs Present in Violent Deaths (See Figure 30, page 81)

Cocaine is the drug of abuse seen most frequently in deaths by homicide and vehicular deaths, while heroin slightly predominates in deaths from non-vehicular accidents and suicide.

TABLE XXXII. ABUSE DRUGS

SAN FRANCISCO MEDICAL EXAMINER-CORONER'S CASES

Abuse Drugs Present Alone

Drug	Drug Caused Deaths	Drug Related Deaths	Role Unclear	Incidental Finding
Cocaine alone	22	60	11	4
Heroin alone	37	3	1	3
Amphetamines alone	5	3	1	1
PCP alone	0	1	0	0

Abuse Drugs Present in Combination with Other Drugs

Drug	Drug Caused Deaths	Drug Related Deaths	Role Unclear	Incidental Finding
Cocaine in combination	48	10	2	9
Heroin in combination	40	6	1	1
Amphetamines in combin.	9	0	0	1
PCP in combination	1	0	0	0

TABLE XXXIII. ABUSE DRUGS

INCIDENCE BY SEX, RACE, AGE, AND ALCOHOL INVOLVEMENT

Drugs Present Singly

	SEX		RACE					
Drug	%M	%F	%W-NH	%W-H	%B-NH	Mean Age	% WITH ALCOHOL	AVE. ALC. CONC (g%)
COCAINE-DC*	82	18	27	23	41	34.4	38	0.13
COCAINE-DR**	83	17	30	20	45	31.2	58	0.14
HEROIN -DC*	86	14	81	11	8	36.2	73	0.18
HEROIN-DR**	67	33	67	33	0	49.3	0	-
AMPHET.-DC*	60	40	80	0	0	26.8	0	-
AMPHET.-DR**	67	33	67	0	0	36.6	0	-
PCP-DC*				NONE				
PCP-DR**	0	100	0	100	0	33.0	0	-

Drugs Present in Combination

	SEX		RACE					
Drug	%M	%F	%W-NH	%W-H	%B-NH	Mean Age	% WITH ALCOHOL	AVE. ALC. CONC (g%)
COCAINE+-DC*	85	15	65	10	19	37.8	40	0.14
COCAINE+-DR**	73	27	27	0	73	39.9	18	0.15
HEROIN+-DC*	88	12	78	5	12	37.1	38	0.14
HEROIN+-DR**	83	17	67	0	33	42.2	33	0.14
AMPHET+-DC*	89	11	67	22	11	34.5	44	0.14
AMPHET+-DR**				NONE				
PCP+-DC*	100	0	100	0	0	31.0	100	0.23
PCP+-DR**				NONE				

* DC = Drug Caused
** DR = Drug Related

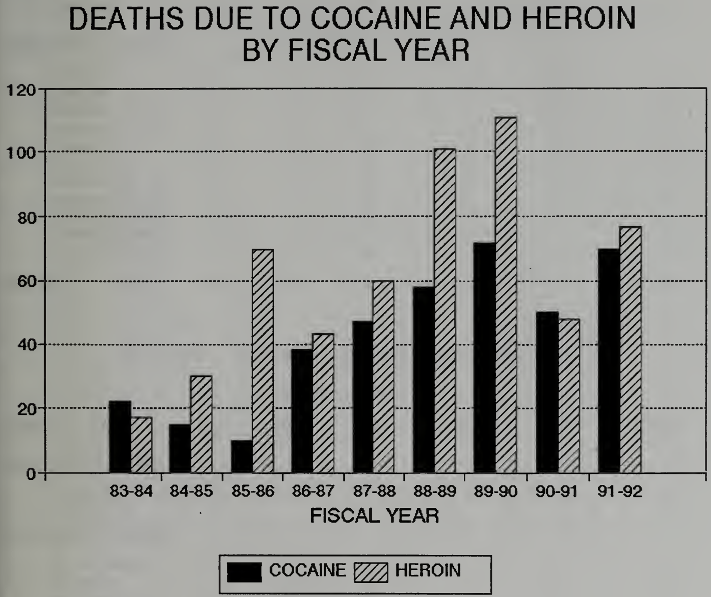

DEATHS DUE TO COCAINE AND HEROIN
BY FISCAL YEAR
120
100
80
60
40
20
0
83-84
84-85
85-86
86-87
87-88
88-89
89-90
90-91
91-92
FISCAL YEAR
COCAINE
HEROIN

Figure 28.

DEATHS INVOLVING COCAINE

TABLE XXXIV. COCAINE PRESENT ALONE

CAUSE OF DEATH	ACC	SUI	HOM	EQ	UND	TOTALS
			Manner of Death			
Drug Caused Deaths						
OVERDOSE	21	0	0	1	0	22
Drug Related Deaths						
JUMP-BLDG	0	1	0	0	0	1
HANGING	0	1	0	0	0	1
GUNSHOT WOUND	1	3	24	1	0	29
TRAUMATIC INJ.	0	0	3	1	0	4
STABBING	0	0	8	1	0	9
VEHICULAR	6	0	1	2	0	9
FALLS-BLDG	2	0	0	0	0	2
STRANGULATION	0	0	1	0	0	1
CARDIOMYOPATHY	1	0	0	0	0	1
INTRACEREBRAL HEMORRHAGE	1	0	0	2	0	3
TOTALS	32	5	37	8	0	82

TABLE XXXV. COCAINE IN COMBINATION WITH OTHER DRUGS

CAUSE OF DEATH	ACC	SUI	HOM	EQ	UNK	TOTALS
		Manner of Death				
Drug Caused Deaths						
OVERDOSE	41	2	0	5	0	48
Drug Related Deaths						
CO POISONING	1	1	0	0	0	2
STABBING	0	0	2	0	0	2
FALL-BLDG	1	0	0	0	0	1
GUNSHOT WOUND	0	0	2	0	0	2
TRAUMATIC INJURY	0	0	2	0	0	2
SEPSIS	1	0	0	0	0	1
TOTALS	44	3	6	5	0	58

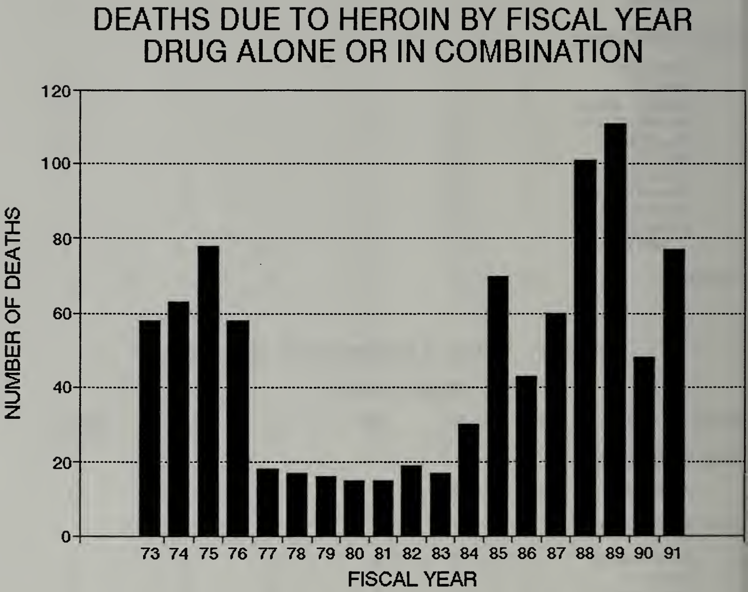

DEATHS DUE TO HEROIN BY FISCAL YEAR
DRUG ALONE OR IN COMBINATION
NUMBER OF DEATHS
120
100
80
60
40
20
0
73
74
75
76
77
78
79
80
81
82
83
84
85
86
87
88
89
90
91
FISCAL YEAR

Figure 29.

TABLE XXXVI. DEATHS INVOLVING HEROIN

HEROIN PRESENT ALONE

	Manner of Death					
CAUSE OF DEATH	ACC	SUI	HOM	EQ	UND	TOTALS
Drug Caused Deaths						
OVERDOSE	37	0	0	0	0	37
Drug Related Deaths						
TRAUMATIC INJURY	0	0	1	0	0	1
FALL-BLDG	1	0	0	0	0	1
SMOKE INHALATION	1	0	0	0	0	1
TOTALS	39	0	1	0	0	40

HEROIN PRESENT IN COMBINATION WITH OTHER DRUGS

	Manner of Death						
CAUSE OF DEATH	ACC	SUI	HOM	NC	EQUIV	UND	TOTALS
Drug Caused Deaths							
OVERDOSE	38	0	0	0	2	0	40
Drug Related Deaths							
ENDOCARDITIS	0	0	0	1	0	0	1
GUNSHOT WOUND	0	0	2	0	0	0	2
HEAD TRAUMA	0	0	1	0	0	0	1
INTRACEREBRAL HEMORRHAGE	0	0	0	0	1	0	1
SUFFOCATION	0	1	0	0	0	0	1
TOTALS	38	1	3	1	3	0	46

TABLE XXXVII. DEATHS INVOLVING AMPHETAMINES

AMPHETAMINES PRESENT ALONE

	Manner of Death					
CAUSE OF DEATH	ACC	SUI	HOM	EQ	UNK	TOTAL
Drug Caused Deaths						
OVERDOSE	5	0	0	0	0	5
Drug Related Deaths						
HANGING	0	1	0	0	0	1
DROWNING	0	0	0	1	0	1
SUBARACHNOID HEMORRHAGE	1	0	0	0	0	1
TOTALS	6	1	0	1	0	8

AMPHETAMINES PRESENT IN COMBINATION WITH OTHER DRUGS

	Manner of Death					
CAUSE OF DEATH	ACC	SUI	HOM	EQ	UNK	TOTAL
Drug Caused Deaths						
OVERDOSE	8	0	0	1	0	9
TOTALS	8	0	0	1	0	9

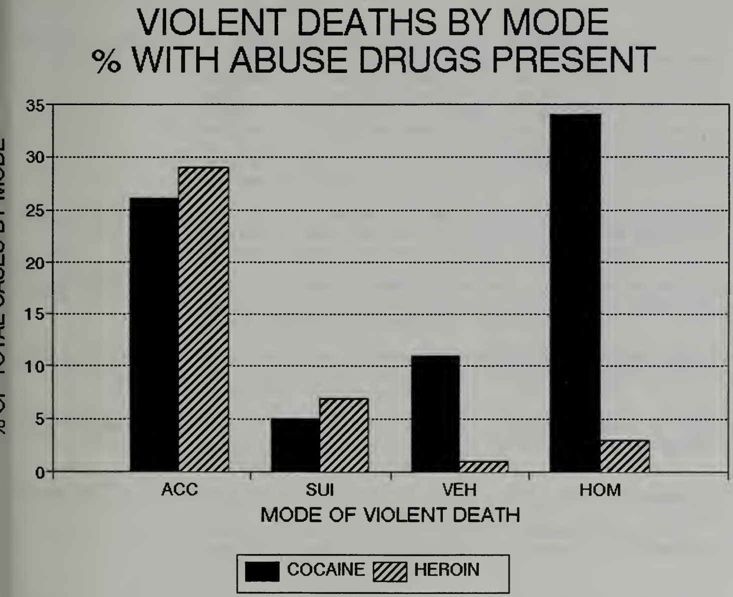

VIOLENT DEATHS BY MODE
% WITH ABUSE DRUGS PRESENT
35
30
25
20
15
10
5
0
ACC
SUI
VEH
HOM
MODE OF VIOLENT DEATH
COCAINE
HEROIN

Figure 30.

GLOSSARY

ALKALOID OF MORPHINE GROUP	Typically referred to as morphine-type alkaloid, this is the chemical substance found in body fluids after the injection of heroin or other drugs derived from opium
TOXICOLOGY NOT VALID OR ELIMINATED	This term indicates that the deceased lived long enough after the injury to have eliminated some or all toxic agents from the body
FORENSIC PATHOLOGY	The specialty field of medicine involving the application of medical and pathology principles in determining the cause and manner of sudden, unexpected, and medically unattended deaths. This includes the type and nature of injury, public health hazards, type or nature of homicide weapon, the relation of injury to death and interpreting other factors for the court. These data are prepared and presented to the judicial system or public health interests in keeping with the best available knowledge
MODE OF DEATH	Indicates the manner of death, such as natural, accident, suicide or homicide, and is to be distinguished from cause of death, which is purely a medical determination
MODE EQUIVOCAL	With the cause of death determined, investigative data do not clearly differentiate between two modes of death, although some evidence supports one more likely
MODE UNDETERMINED	With the cause of death determined, investigative data do not clearly support one of two possible modes and either one is possible without prejudice
MODE UNKNOWN	Circumstances insufficient to indicate between possible modes, as when only bones are found, or when no medical cause of death is determined
PATHOLOGY	That branch of medicine which deals with the essential nature of disease, especially in the structural or functional changes in tissues, organs or systems of the body causing disease. It involves the diagnosis of disease by microscopic or chemical analysis
SEROLOGY	That branch of pathology which deals with the analysis of blood and body fluids. Blood types for identification, exclusion of a suspect or judicial purposes are examples of the use in this office

TOXICOLOGY	The scientific study of poisons, their detection, actions and treatment. The relationship of drug levels to emotional or personality change, behavioral or reasoning ability are frequent decisions based on these data
MEDICAL EXAMINER	A physician specifically trained in forensic pathology who is responsible for investigating and determining the cause and manner of sudden or unexpected death
AUTOPSY	A scientific dissection of the human body to determine the cause and nature of death in order to detect public health hazards, determine the method or type of death in homicides and improve the level of medical care in the community. In some cases, showing that no injury or wrongdoing was present is of great emotional and stabilizing value to the family

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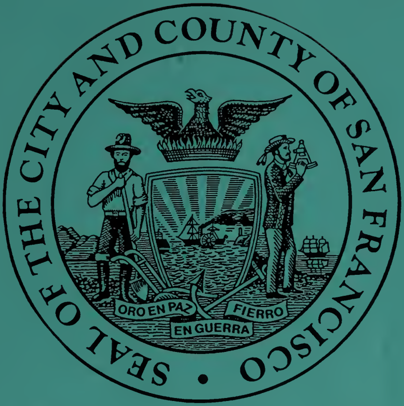
SEAL OF THE CITY AND COUNTY OF SAN FRANCISCO
ORO EN PAZ
FIERRO
EN GUERRA

ANNUAL REPORT
July 1, 1992 - June 30, 1993

BOYD G. STEPHENS, M.D.
Chief Medical Examiner

850 Bryant Street
San Francisco, California 94103

MEDICAL EXAMINER'S OFFICE
City and County of
San Francisco, California

ANNUAL REPORT
July 1, 1992 - June 30, 1993

Donna J. Allison, Ph.D.
Statistician and Data Analyst

Mrs. Roy E. Matson
Senior Management Assistant

Joseph E. Surdyka
Administrative Coroner

Boyd G. Stephens, M.D.
Chief Medical Examiner

ity and County of San Francisco
Chief Medical Examiner · Coroner

February 1994

Honorable Frank Jordan, Mayor
Honorable Board of Supervisors
City and County of San Francisco
San Francisco, California 94102

Dear Mayor Jordan and Honorable Supervisors:

The attached annual report covers the fiscal year 1992-1993. This is a time of rapid and very significant change for the medical examiner's office.

The principle administrative problem for the reporting year was budget reductions and their attendant problems. These factors, coupled with new responsibilities and no ability to update or improve our equipment makes coping with these changes much more difficult. We absorbed several new responsibilities despite reduced staffing, effectively increasing the department workload. The increasing trend of taking all personnel issues, regulation compliance and discipline matters out of the department and through several layers of administrative or legal review adds even further to the department workload .

The major scientific problems have been the increasing complexity of cases, along with the judicial system demanding rapid, accurate, and all inclusive information for court presentation. The need for increased automation and networking of our procedures is obvious, but expensive. The prevalence of drugs and infectious agents require more complex and costly procedures to protect employees and the public, new testing procedures and is a further problem for the department.

With both budget and staff reductions, our abilities to respond to scenes, examine victims and suspects, and perform the administrative functions are stretched to the limit.

In spite of these many problems, my staff has continued to perform well-frequently beyond the level expected or required. The professional attitudes and high level of compassion continues to be a hallmark of the employees in this department.

I am very proud of my staff, and pleased with the continued support be get from many other departments as well as from the public whom we serve.

553-1694 Hall of Justice, 850 Bryant Street San Francisco, CA 94103
ACCREDITED NATIONAL ASSOCIATION OF MEDICAL EXAMINERS

The workload of the department, as well as a considerable amount of scientific data which is highly useful in understanding the problems leading to injury and death in our community,are included. Many of the drug problems, such as heroin, thought to be under control are,in fact, shown to be a continuous problem in the county. Deaths due to firearms, including ,gang related shootings continue to be a major wastage of our young people. Many of the accidental deaths, and all of the drug deaths are preventable.

Other health problems, including the major social problems of our community are reflected in these records.

Other services, including drug testing for other departments, examination of victims and suspects, and research support are all part of the work of the department, and the subject of this report. It does not directly reflect the support to the police, courts or department of public health, whom we serve directly and indirectly in many ways.

Sincerely,

Boyd G. Stephens, M.D.
Chief Medical Examiner

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INTRODUCTION

The Medical Examiner-Coroner is appointed by law to many responsibilities, the foremost of which is the investigation and certification of a variety of deaths including all deaths of other than natural causation, and any apparently natural deaths in which no physician can reasonably state the cause. The Medical Examiner can utilize any and all medico-legal investigative techniques, including autopsy, to establish both the medical cause of death, and mode or circumstances of death (natural, accident, homicide, suicide or undetermined).

The deaths which must be reported to the Medical Examiner-Coroner, as required by various sections of the Government, Health and Safety and Penal codes, are as follows:

1. Homicide - known or suspected
2. Suicide - known or suspected
3. Following accident or injury (whether the accident or injury is the primary cause or contributory, with death occurring immediately or at some remote time)
4. Medical attendance of less than 20 days
5. No physician in attendance
6. Physician unable to state the cause of death (must be unable, not merely unwilling)
7. Poisoning (food, chemical, drug, therapeutic agents)
8. Occupational or industrial deaths
9. All deaths where a patient has not fully recovered from an anesthetic, whether in surgery, recovery room, or elsewhere
10. All deaths in operating rooms
11. All solitary deaths (unattended by physicians or other person in the period immediately preceding death)
12. All deaths in which the patient is comatose throughout the period of the physician's attendance
13. All deaths of unidentified persons
14. All deaths in which there are grounds to suspect that the death occurred in any degree from a criminal act
15. All deaths involving contagious disease - known or suspected - and constituting a public health hazard
16. Deaths in prison or while under sentence
17. All deaths associated with a rape - known or alleged - or crime against nature
18. All deaths related to or following abortion - known or suspected
19. All deaths involving drowning, fire, hanging, gunshot, stabbing, cutting, starvation, exposure, alcoholism, drug addiction, strangulation or aspiration

Additional mandated responsibilities include protecting and safekeeping of property belonging to deceased individuals, conducting inquests when indicated, maintaining proper public records, making reports to other agencies, identification of deceased persons, interment of indigent dead, and many other death-related activities.

FORENSIC MEDICINE

Forensic medicine generally is considered to be a marriage of medicine and the forensic sciences oriented to medico-legal issues. The field is wide-ranging and growing, becoming even broader in scope than the traditional concept as practiced in Europe.

There has been continued growth and accentuation of the role of forensic medicine in the legal and medico-legal world over the past year. This office has continued its role in forensic medicine for both living and dead, playing a vital role in the community.

We serve in a number of places in the community. Some of these include:

Examination and diagnosis of the living:

- Examination and evaluation of child abuse
- Examination and evaluation of sexual assault injuries
- Examination and evaluation of spousal abuse
- Evaluation of citizens' complaints against the Police Department
- Testimony and interpretation of hospital records and procedures
- Evaluation of force and patterned injuries
- Examination of victims and suspects for trace evidence and injuries
- Collection of blood from suspects and victims for serology, toxicology and other testing
- Court testimony on force, great body injury (GBI) and other issues
- Alcohol and drug interaction in driving under the influence cases and related issues
- Physiologic effects of drug interactions
- Toxicology, including environmental and industrial toxicities
- Teaching - Hospitals, forensic, law enforcement, community
- Analysis for drugs on patients on probation
- Analysis for drugs on management control cases for the County

Examination and evaluation of the dead:

- Scene investigation, reconstruction and analysis
- Evidence collection and testing
- Blood spatter analysis and interpretation
- Patterned evidence analysis and interpretation
- Trace evidence collection
- Time and place of death information
- Forensic autopsy - consultation and interpretation
- Analysis for chemical and limited serology testing
- Forensic toxicology
- Consultation with District Attorney and Public Defender
- Reconstruction Analysis and court presentation
- Teaching - forensic and legal

DEPARTMENT STATUS AND FUTURE

The department faces some significant problems now and for the future. One of these is the increasing numbers of "designer drugs" which are manufactured for a number of reasons, including avoidance of existing Federal laws. These chemical analogues or new molecules constantly require new analytic approaches, techniques and standards. Hazards to users, officers and laboratory personnel are largely unknown, and some of the compounds are so dangerous that skin contact can be lethal or can produce delayed complications, such as Parkinson's disease.

The ever-increasing scientific capabilities in techniques and instrumentation result in a requirement for increased training and equipment for the department. Interfacing with other agencies and departments is increasing along with the need for information sources and sharing. These are some of the major problems for the future. The information and records issue will constitute a major decision and policy-making step over the next five years.

The department needs to obtain a stand-alone computer network to handle our unique requirements. Although the initial costs to the County will be relatively high, the long-term benefits and cost savings will more than offset this investment of time and money. The need to obtain access to major library data bases, legal information, and records management, will be some of the most expensive and time-consuming aspects of department management for this next five year period. The forensic world is growing so rapidly that it is difficult to foresee its exact direction. Trace evidence and DNA serology are unquestionably going to be a large part of that future for the next five years.

We need to accentuate automation in both laboratory testing and in recording and processing data. Bar-coding evidence, property and specimens would help tremendously in their handling. These are major problems for the department as they are so labor intensive, requiring multiple access phases for intake, storage and release or destruction. Automation of our records would greatly reduce waste of staff time associated with repetitive steps currently required to produce, access and store the many legal records produced by the department. Automation in the testing of the many samples processed by the laboratories would both improve productivity and improve the turn-around time required to complete death certificates.

DEPARTMENTAL COSTS

1992 - 1993

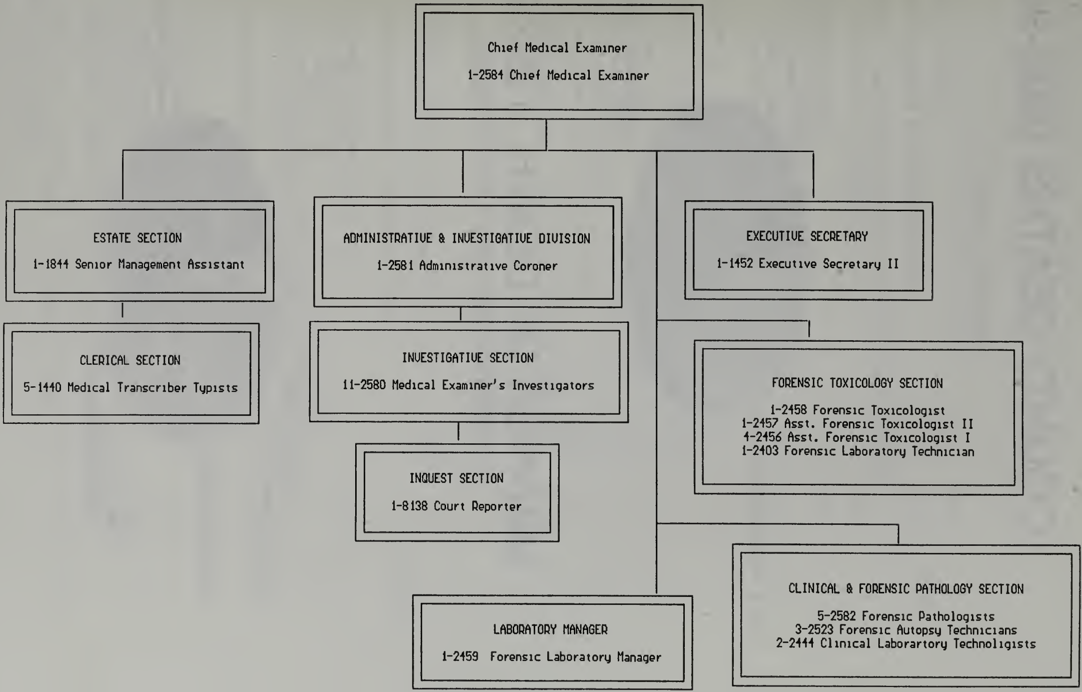
Total Budget	$3,308,253.00*
Transfers to controller, Health and Retirement	$ 539,015.00
NET BUDGET (all other costs)	2,769,238.00
Total Cases	4,933
Cost per case investigated	$ 561.00
Revenues (sales of records, public auctions, fee-for-service work	$ 142,473.00*
Total Costs Ad Valorum Taxes per case investigated	$ 532.00

As indicated elsewhere, this includes all investigative, administrative, scientific and expert witness costs to the County.

* DUI fines money included

ORGANIZATIONAL CHART

Medical Examiner's Office



Chief Medical Examiner
1-2584 Chief Medical Examiner

ESTATE SECTION
1-1844 Senior Management Assistant

CLERICAL SECTION
5-1440 Medical Transcriber Typists

ADMINISTRATIVE & INVESTIGATIVE DIVISION
1-2581 Administrative Coroner

INVESTIGATIVE SECTION
11-2580 Medical Examiner's Investigators

INQUEST SECTION
1-8138 Court Reporter

EXECUTIVE SECRETARY
1-1452 Executive Secretary II

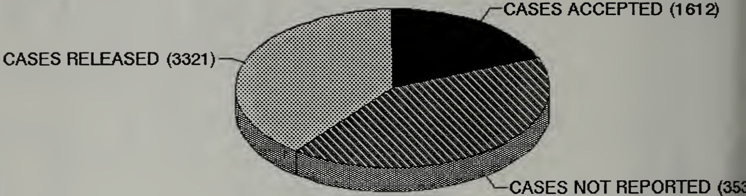
FORENSIC TOXICOLOGY SECTION
1-2458 Forensic Toxicologist
1-2457 Asst. Forensic Toxicologist II
4-2456 Asst. Forensic Toxicologist I
1-2403 Forensic Laboratory Technician

CLINICAL & FORENSIC PATHOLOGY SECTION
5-2582 Forensic Pathologists
3-2523 Forensic Autopsy Technicians
2-2444 Clinical Laborartory Technoligists

LABORATORY MANAGER
1-2459 Forensic Laboratory Manager

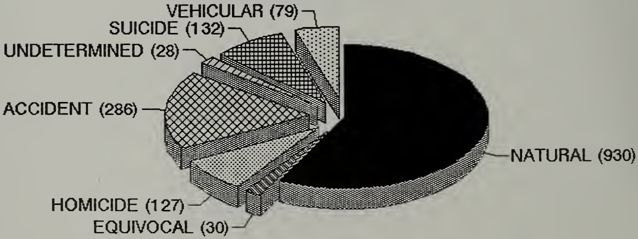
COUNTY DEATHS 1992-93

Figure 1.



MANNER OF DEATH 1992-93
JURISDICTION ON 1,612 CASES

Figure 2.



FISCAL YEAR 1992-93

Total Deaths in County	8,470
Total Deaths Reported to Medical Examiner	4,933
Cases Reported, Investigated and Cleared by the Medical Examiner for physician's signature	3,321
Medical Examiner's Cases	1,612

% Reported to Medical Examiner	58.2
% County Deaths Having Medical Examiner's Jurisdiction	19.0

Cases Accepted by the Medical Examiner (by manner of death)*

1.	Natural Deaths (NC)	911	(56.5%)
2.	Accidents (ACC)	286	(17.7%)
3.	Suicides (SUI)	132	(8.2%)
4.	Homicides (HOM)	127	(7.9%)
5.	Mode Equivocal (EQ)	30	(1.9%)
6.	Mode Undetermined (UND)	28	(1.7%)
7.	Sudden Infant Death Syndrome (SIDS)	19	(1.2%)
8.	Vehicular	79	(4.9%)
9.	Private Autopsies	10**	

**Not included in above figures.

Autopsy Index

Full Autopsy	67%
Partial Autopsy or External Examination	33%

Dispositions Authorized by the Medical Examiner

1.	Indigents and fetus dispositions Adults - 311 Infants - 22	333
2.	Cases buried by funeral home with Public Administrator-controlled funds	58

Inquests Held or Depositions Taken	24

Identification

1.	Persons brought to Medical Examiner's Office with insufficient identification	234
2.	Persons subsequently identified by fingerprints, dental X-rays or other means	228
3.	Persons buried as unidentified	6
4.	Fingerprints taken and forwarded to FBI, CII, or SFPD	1,489

* The abbreviations following each manner of death will be used in most tables in this report.

CONSULTATIONS, COURT APPEARANCES, EXAMINATIONS AND REFERRALS
FISCAL YEAR 1992-93

Court appearances are made and consultations are conducted, as required, on cases involving both living and deceased individuals.

Type	Number
Court appearances	108
Consultations	1492

The number of consultations has increased substantially over the previous fiscal year (See Figure 3, below).

Examinations	
Suspected child abuse	41

Specimens submitted for toxicology testing from living individuals	
Living victims or defendants in violent crimes	62
Management control - other City departments	385
Probation - Adult	3,432
Probation - Juvenile	542
DUI suspects	557

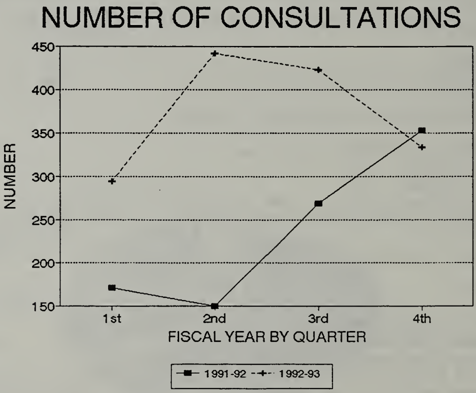


Figure 3.

MEDICAL EXAMINER CASES FOR 1992-93

In fiscal year 1992-93, there were 8,470 deaths in San Francisco County. Of these deaths, 4,933 were reported to the San Francisco Medical Examiner's Office. The Medical Examiner's Investigators examined the previous medical history, circumstances surrounding the deaths and, in many cases, the scene of the death, and determined that 1,612 of these deaths came under the jurisdiction of this office. See Figure 1, page 8). Full or partial autopsies or external examinations were performed on all cases.

1. The highest total number of deaths occurred in January, 1993. The highest number for the various manners of death occurred during other months (e.g., highest number of accidental deaths in October 1992, highest number of homicides and suicides in March 1993. See Table I and Figure 4, page 12.

2. The racial distribution for each manner of death was quite variable. For example, the value of the ratio of whites/blacks was 4.0 overall, 3.98 for accidents, 13.4 for suicides (as compared to 27.8 for 1989-90), and 1.00 for homicides. See Table II, page 13 and Figure 6, Page 15.

3. The age range distribution for each manner of death was also variable. For example, the highest number of accidental deaths occurred in the 30-39 year age group, the highest number of homicides occurred in the 20-29 year age group, and the highest number of suicides occurred in the 40-49 year age group. During this fiscal year as compared to the previous year, the number of accidental deaths in the age group of 20-59 years, increased by 16%, from 177 to 206, while the number of homicides in this group increased only 3%, from 98 to 101. The number of suicides in the age group of 20-29 decreased from 26 to 14, a decrease of 46%! See Table III, page 13.

4. The overall distribution of deaths by sex (ratio of male/female) was 2.4, but this varied by manner of death from 1.9 in deaths due to natural causes to 4.5 in homicide deaths. See Table IV and Figure 5, page 14.

MEDICAL EXAMINER CASES FOR 1992-93

TABLE I. MANNER OF DEATH - MONTHLY COMPARISON

Month of Death	Manner of Death								
	ACC	HOM	SUI	NC	VEH*	SIDS#	EQ	UNK	TOTALS
July	14	8	13	54	9	3	3	1	105
August	23	8	9	70	3	2	3	3	121
September	23	15	12	79	9	3	1	2	144
October	35	9	12	79	6	2	0	4	147
November	23	10	3	66	5	3	2	1	113
December	28	10	14	95	7	1	3	2	160
January	32	10	8	102	12	0	3	3	170
February	21	7	12	68	5	2	2	0	117
March	16	18	16	83	4	2	3	3	145
April	27	8	8	82	7	0	1	5	138
May	18	8	13	63	3	0	2	3	110
June	26	16	12	70	9	1	7	1	142
TOTALS	286	127	132	911	79	19	30	28	1612

*VEH = Vehicular deaths. These include 14 deaths ruled to be homicide, 62 cases ruled to be accidental, 2 ruled to be equivocal/undetermined and 1 ruled to be by suicide.

# SIDS = Sudden Infant Death Syndrome

Fig. 4.

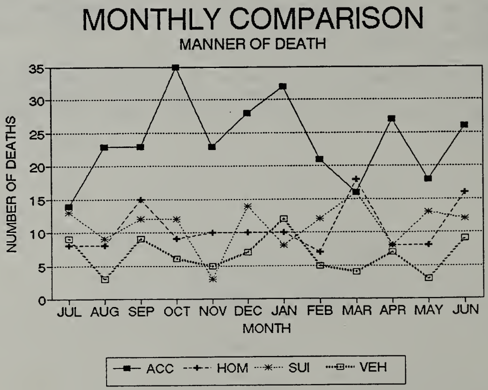


TABLE II. MANNER OF DEATH BY RACE

Manner of Death

Race	ACC	HOM	SUI	NC	VEH*	SIDS#	EQ	UNK	TOTALS
White	203	56	107	654	51	12	21	18	1122
Black	51	56	8	136	13	3	5	8	280
Asian	27	13	16	109	15	3	2	0	185
Other	5	2	1	12	0	1	2	2	25
TOTALS	286	127	132	911	79	19	30	28	1612

TABLE III. MANNER OF DEATH BY AGE

Manner of Death

Age Group	ACC	HOM	SUI	NC	VEH*	EQ	UNK	TOTALS
0-11 months	1	2	0	22#	0	1	2	28
1-5 years	4	3	0	1	1	0	2	11
6-12 years	2	1	0	1	4	0	0	8
13-16 years	3	2	0	0	2	0	0	7
17-19 years	1	8	2	0	4	0	0	15
20-29 years	34	49	14	12	12	6	2	129
30-39 years	87	25	29	52	13	8	9	223
40-49 years	65	14	36	104	9	6	7	241
50-59 years	20	13	16	131	5	4	2	191
60-69 years	29	3	12	167	6	4	4	225
70-79 years	15	4	14	218	15	0	0	266
80-89 years	21	3	8	170	7	1	0	210
90+ years	4	0	1	51	1	0	0	57
Unknown	0	0	0	1	0	0	0	1
TOTALS	286	127	132	930	79	30	28	1612

# Includes 19 SIDS (Sudden Infant Death Syndrome) deaths

* VEH = Vehicular deaths. These include 14 deaths ruled to be homicide, 62 cases ruled to be accidental, 2 cases ruled to be equivocal/undetermined, and 1 ruled to be by suicide.

TABLE IV. MANNER OF DEATH BY SEX

Manner of Death

Sex	ACC	HOM	SUI	NC	VEH*	SIDS#	EQ	UNK	TOTALS
M	218	104	97	600	55	12	25	20	1131
F	68	23	35	311	24	7	5	7	480
Unknown	0	0	0	0	0	0	0	1	1
TOTALS	286	127	132	911	79	19	30	28	1612

* = Vehicular deaths. These include 14 cases ruled to be homicide, 62 cases ruled to be accidental, 2 ruled to be equivocal/undetermined, and 1 ruled to be by suicide.

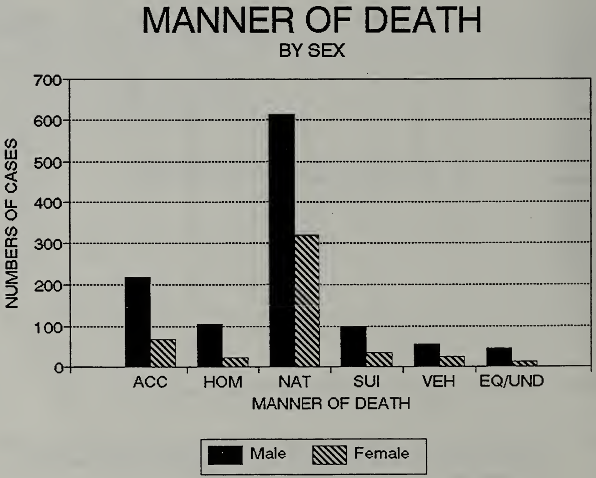


Figure 5.

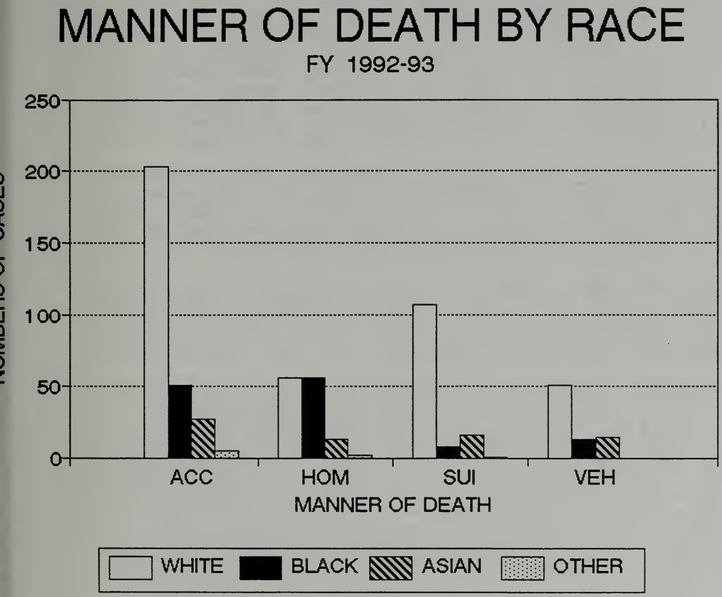

MANNER OF DEATH BY RACE
FY 1992-93
250
200
150
100
50
0
ACC
HOM
SUI
VEH
MANNER OF DEATH
WHITE
BLACK
ASIAN
OTHER

Figure 6.

YEARLY COMPARISON OF MEDICAL EXAMINER'S CASES

Comparisons of manners of death as well as methods used over the last eight fiscal years are presented in this section. The most significant differences which have occurred over the last eight years which can be observed in these tabulations include:

1. Regarding manners of death, the number of homicides (127) during fiscal year 1992-93 is the highest number of homicides during the last 8 fiscal years. The number of accidental deaths increased from 1991-92, and is the second highest number of accidental deaths during the last 8 fiscal years. The number of cases ruled to be suicide (132) was a decrease of 14% from fiscal year 1991-92 and the second lowest number observed during the last 8 fiscal years. The number of deaths due to natural causes which came under the jurisdiction of this office increased 5% from fiscal year 1991-92. The total number of vehicular deaths (79) was the same as in 1991-92. (See Table V and Figure 7, page 18 and Figure 2, page 8).

2. With respect to the methods used in homicide deaths, the most notable differences from the previous fiscal year are a continuing increase in deaths caused by firearms, from 70 to 75 and a 20% increase in homicide deaths due to stabbing. Deaths due to firearms accounted for 53% of all homicide deaths. (See Table VI and Figure 8, page 19).

3. There was a 13% decrease in the number of suicides during fiscal year 1992-93 (133) as compared to 1991-92 (153). There was a notable decrease (60%) in deaths due to jumps from buildings as compared to fiscal year 1991-92 and a 3.5 fold increase in suicide deaths from cutting/stabbing (from 2 to 9). (See Table VII and Figure 9, page 20).

4. Regarding deaths ruled to be accidental, the most significant observation is a 27% increase in accidental deaths due to drugs, as compared to the previous fiscal year. This is the second year in a row in which accidental deaths due to drugs increased 27% over the previous fiscal year! There was 1 accidental death due to firearms during 1992-93. Deaths due to smoke or carbon monoxide inhalation decreased by 57% and deaths from aspiration decreased 50%, from 12 in 1991-92 to 6 in 1992-93). This is the second lowest number of deaths due to aspiration in the last 8 fiscal years. The number of deaths from falls is still second only to deaths from drugs as a leading cause of accidental deaths (See Table VIII and Figure 10, page 21.

YEARLY COMPARISONS OF MEDICAL EXAMINER-CORONER'S CASES

TABLE V. YEARLY COMPARISON OF MANNER OF DEATH

Manner of Death	Fiscal year '85-'86	'86-'87	'87-'88	'88-'89	'89-'90	'90-'91	'91-'92	'92-'93
Accident	231	222	258	258	298	229	266	286
Homicide	120	110	110	91	94	88	123	127
Suicide	161	171	162	171	128	154	153	132
Natural	1150	1040	1074	1010	903	911	885	930
Vehicular*	61	46	75	71	76	83	79	79
Equiv/Undet	63	62	82	85	76	72	53	58
TOTALS	1786	1651	1761	1686	1575	1537	1557	1612

* Vehicular deaths include 14 cases ruled to be homicide, 62 cases ruled to be accidental, 2 cases ruled to be equivocal/undetermined and 1 case ruled to be suicide.

Figure 7.

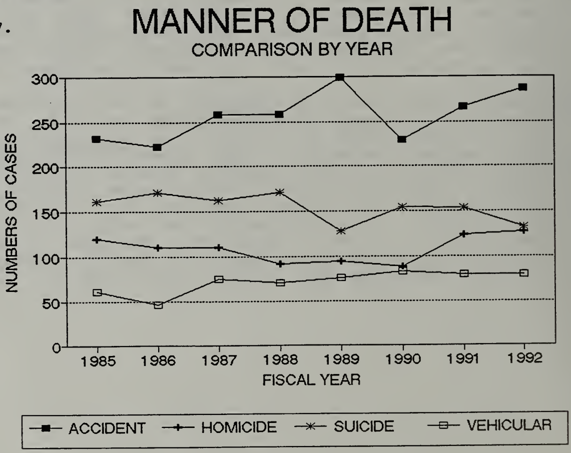


TABLE VI. YEARLY COMPARISON OF HOMICIDE METHODS USED

	Fiscal year							
Method Used	'85-'86	'86-'87	'87-'88	'88-'89	'89-'90	'90-'91	'91-'92	'92-'93
Firearms	40	41	48	41	61	50	70	75
Stabbing	34	32	35	21	17	17	20	24
Traum. Inj.	18	21	23	22	10	14	22	16
Vehicular	11	7	13	16	10	16	15	14
Asphyxiation	8	8	3	5	3	5	7	4
Other	9	1	1	2	3	2	4	8
TOTALS	120	110	123	107	104	104	138	141

Figure 8.

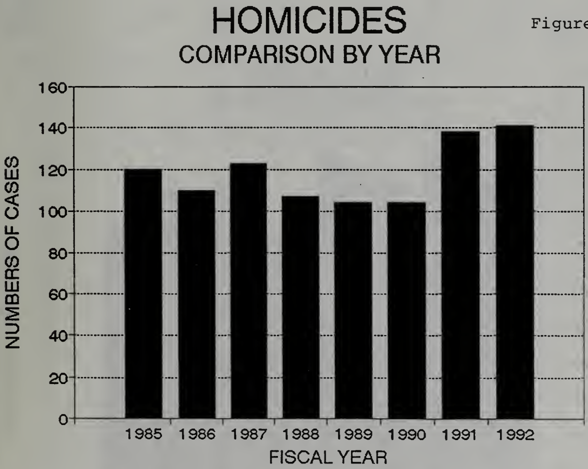


TABLE VII. YEARLY COMPARISON OF SUICIDE METHODS USED

	Fiscal year							
Method Used	'85-'86	'86-'87	'87-'88	'88-'89	'89-'90	'90-'91	'91-'92	'92-'93
Poisoning	36	32	32	44	31	37	44	31
Firearms	46	45	42	44	35	40	37	32
Hanging	28	29	28	17	23	25	23	22
Jump/Building	16	19	19	30	7	13	20	8
Suff/strangul	2	3	7	7	6	6	9	14
CO Poisoning	6	6	2	2	9	5	6	5
Jump/GG Brdg	17	19	18	15	10	13	4*	1
Jump/Bay Brdg	0	1	1	2	2	0	2	1
Jump/Other	-	-	-	-	-	-	2	3
Cut/stab	5	9	8	5	3	7	2	9
Drowning	3	6	3	2	0	1	2	3
Vehic. BART	-	-	-	-	-	-	2	2
Burning	1	0	0	2	0	2	0	0
Other	1	2	2	1	2	7	0	2
TOTALS	161	171	162	171	128	156	153	133

Figure 9.

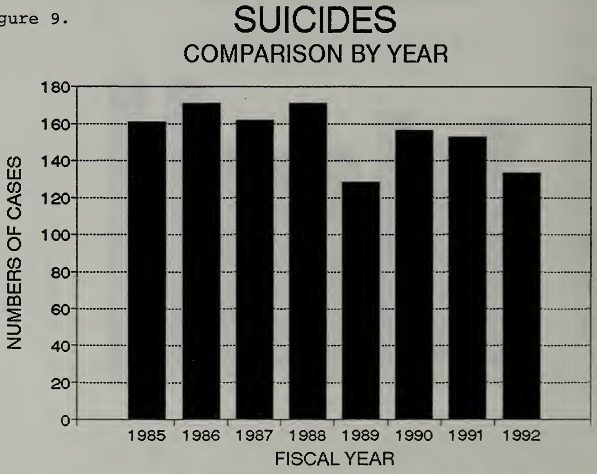


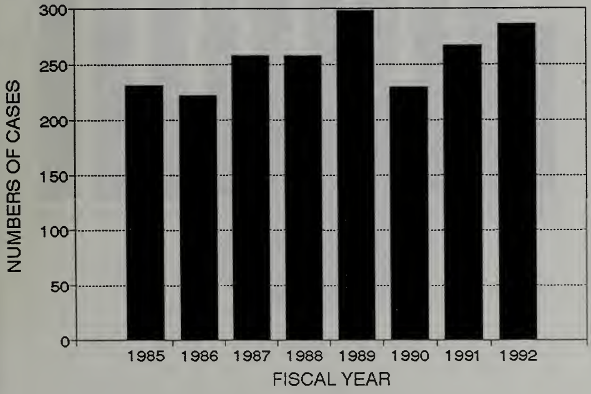
TABLE VIII. YEARLY COMPARISON OF ACCIDENTAL* DEATH SITUATIONS

	Fiscal year							
Situation	'85-'86	'86-'87	'87-'88	'88-'89	'89-'90	'90-'91	'91-'92	'92-'93
Drugs/Poisons	96	92	100	144	157	97	123	156
Falls	67	80	76	54	53	55	61	58
Med. Misadv.	-	12	13	6	7	12	18	8
Smoke/CO inhal	0	9	8	11	4	8	14	6
Drug/Alcohol Abuse Rel.	-	-	13	9	3	6	13	18
Aspiration	7	8	10	5	13	10	12	6
Burns	15	6	12	3	15	10	4	4
Drowning	9	5	14	11	10	12	4	5
Asphyxia	6	4	2	8	8	3	3	5
Firearms	2	1	1	3	0	2	2	1
Drug Reactions	-	-	-	-	-	4	2	0
Head Trauma	-	-	-	-	11	3	1	6
Hanging	-	-	2	2	0	2	0	1
Other	29	3	7	2	5	5	9	9
TOTALS	231	222	258	258	298	229	266	286

* Vehicular deaths are not included in this tabulation.

ACCIDENTS
COMPARISON BY YEAR

Figure 10.



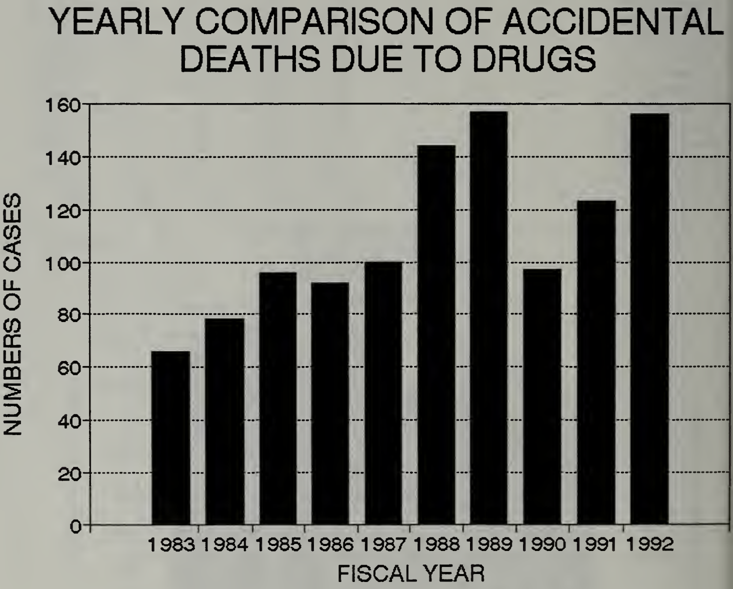

YEARLY COMPARISON OF ACCIDENTAL DEATHS DUE TO DRUGS
NUMBERS OF CASES
160
140
120
100
80
60
40
20
0
1983
1984
1985
1986
1987
1988
1989
1990
1991
1992
FISCAL YEAR

Figure 11.

TABLE IX. VIOLENT DEATHS

Of the 1,612 deaths investigated by the Medical Examiner's Office during 1992-93, 654 were determined to be the result of violence.

Mode	Total No.	% of Coroner's Cases	% of County Deaths
ACCIDENT	348	21.6	4.1
Vehicular	62	3.8	
Non-vehicular	286	17.7	
SUICIDE	133	8.3	1.6
Vehicular	1	0.1	
Non-vehicular	132	8.2	
HOMICIDE	141	8.7	1.7
Vehicular	14	0.9	
Non-vehicular	127	7.9	
EQUIVOCAL	32	2.0	0.4
Vehicular	2	0.1	
Non-vehicular	30	1.9	

VIOLENT DEATHS IN 1992-93
TOTAL = 654

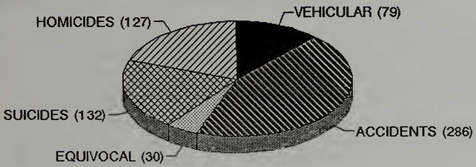


Figure 12.

ACCIDENTAL DEATHS

Three hundred and forty eight deaths were ruled to have been due to accidental means during the 1992-93 fiscal year. Of these, 286 were non-vehicular accidental deaths. The number of individuals dying by each manner of accidental death are indicated in Figure 13, page 27 and Table X, page 28, and the percentages of all accidental deaths represented by each manner are indicated on Table X, page 28.

Of the accidental death victims tested for alcohol and drugs (i.e. those in the hospital for less than 24 hours), many had significant levels of alcohol in their blood; many had abuse drugs present (See Table X, page 28).

Abuse Drug Involvement (Table XI, page 29)

Overall, the number of accidental death cases in which abuse drugs were present increased dramatically from 110 cases in fiscal year 1990-91 to 163 cases in fiscal year 1991-92 (a 48% increase!) to 222 cases in fiscal year 1992-93 (a further 36% increase from the preceding fiscal year). Of the deaths caused by drugs, heroin (measured as morphine) was seen most frequently (98 cases), an increase of 29% from last fiscal year's 76 cases. The second most frequently seen abuse drug in deaths due to drugs was cocaine (89 cases), an increase of 48% from last fiscal year's 60 cases. The number of cases with cocaine present increased by 41% from the previous fiscal year (70 to 99), the number of cases with heroin present increased by 31% (from 77 to 101 cases), while deaths with amphetamines present increased by 47% during this same time period (from 15 to 22 cases). Abuse drugs may have played a role in accidental deaths by falls (6 cases) and smoke inhalation (3 cases).

Racial Distribution (Figure 14, page 30 and Table XII, page 31)

Overall, accidental deaths occurred most frequently in whites. Deaths from drowning occurred less frequently in whites (40%) than would be anticipated by the overall involvement of this racial group in accidental deaths (71%). Asians are more heavily represented (19%) and blacks are less heavily represented (5%) in deaths by falls (7%) than would be expected based on the general involvement of these racial groups in all types of accidental deaths.

Age Distribution (Figure 15, page 32 and Table XIII, page 33)

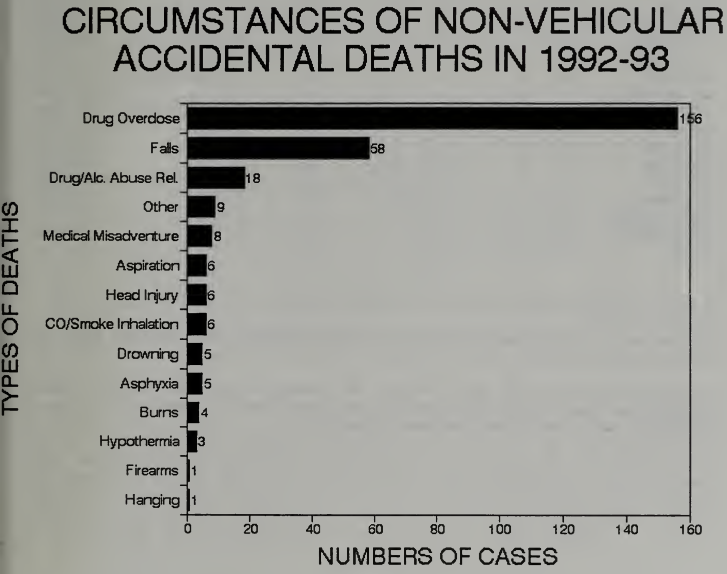
Deaths due to asphyxia, drowning, smoke inhalation or falls are the most common causes of accidental deaths in the youngest age group (0-5 years). There were 6 non-vehicular accidental deaths in the age group from 6-19 years, 2.1% of all non-vehicular accidental deaths during 1992-93. The most common causes of accidental deaths in people over 60 years of age are aspiration (67% of all aspiration deaths), burns (100% of all deaths due to burns), and falls (69% of all deaths due to falls). Deaths due to drug overdoses are concentrated in the 20-49 year age group with 40% of all deaths due to drug overdoses occurring in the 30-39 year age group.

Distribution by Sex (Table XIV, page 34)

Males are 3.2 times as likely as females to be the victims of non-vehicular accidental deaths. This difference is even more pronounced (5.5 times) in deaths due to drug overdoses and is less pronounced in deaths due to falls, burns and drowning. In males, there was a 29% increase in deaths from drug overdoses as compared to the previous fiscal year; in females, drug overdose deaths increased by 14%.

NON-VEHICULAR ACCIDENTS

This category includes all unintentional fatalities. There were 286 accidental deaths (non-vehicular) which accounted for 17.7% of the Medical Examiner death investigations for the fiscal year of 1992-93.



CIRCUMSTANCES OF NON-VEHICULAR ACCIDENTAL DEATHS IN 1992-93

Figure 13.

TABLE X. ACCIDENTAL DEATHS BY MODE

Drug and Alcohol Involvement

METHOD	NUMBER	% OF TOTAL ACCIDENTS	% ALC.*	AVE. ALC. CONC (g%)	% DRUGS**
DRUG O.D.	156	54.5	38	0.14%	--
FALLS	58	20.3	26	0.18%	25
MEDICAL MISADVENTURE	8	2.8	0	-	0
SMOKE/CO INHALATION	6	2.1	25	0.22%	50
DRUG/ALC ABUSE REL.	18	6.3	17	0.03%	36
ASPIRATION	6	2.1	33	0.06%	33
BURNS	4	1.4	66	0.18%	0
DROWNING	5	1.7	0	-	0
ASPHYXIA	5	1.7	0	-	33
HANGING	1	0.3	0	-	0
FIREARMS	1	0.3	100	0.10%	0
HEAD TRAUMA	6	2.1	17	0.21%	33
HYPOTHERMIA	3	1.0	66	0.16%	0
OTHER	9	3.1	0	-	0

* Refers to percentage of victims (of those tested) with positive blood ethyl alcohol levels.

** Refers to percentage of victims (of those tested) with positive tests for abuse drugs.

It should be noted that, when present, the average blood ethyl alcohol concentrations for most modes are substantially higher than the level of 0.08% which is considered to be intoxicated when driving.

TABLE XI. ABUSE DRUGS PRESENT IN NON-VEHICULAR ACCIDENTS

	DRUGS			
Situation	Cocaine	PCP	Morphine	Amphetamines
ASPHYXIA/SUFFOCATION	1	0	0	0
ASPIRATION	1	0	0	0
BURNS	0	0	0	0
FALLS	2	0	1	3
DROWNING	0	0	0	0
DRUG/ALCOHOL ABUSE REL.	4	0	2	0
MEDICAL MISADVENTURE	0	0	0	0
DRUG OVERDOSE	89	0	98	17
SMOKE/CO INHALATION	1	0	0	2
HEAD TRAUMA	1	0	0	0
FIREARMS	0	0	0	0
HANGING	0	0	0	0
HYPOTHERMIA	0	0	0	0
OTHER	0	0	0	0
TOTALS	99	0	101	22

* Drugs may have been present singly or in combination
** Drugs used therapeutically are not included in this tabulation

Overall, the number of accidental death cases where abuse drugs were present increased 36%, from 163 in 1991-92 to 222 in 1992-93! The number of deaths due to an overdose of cocaine (cocaine present alone or in combination with other drugs) increased from 60 in 1991-92 to 89 in 1992-93, a 48% increase. The number of deaths due to an overdose of heroin (measured as morphine), have increased from 47 in 1990-91 to 76 in 1991-92 to 98 in 1992-93. PCP was not present in any deaths. Accidental deaths in which amphetamines were present have increased from 8 in 1990-91 to 15 in 1991-92 to 22 in 1992-93.

RACE OF NON-VEHICULAR ACCIDENT VICTIMS 1992-93

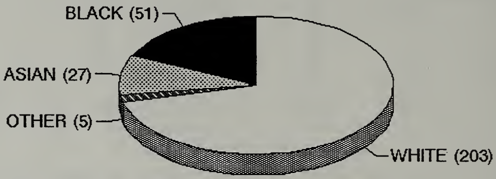


Figure 14.

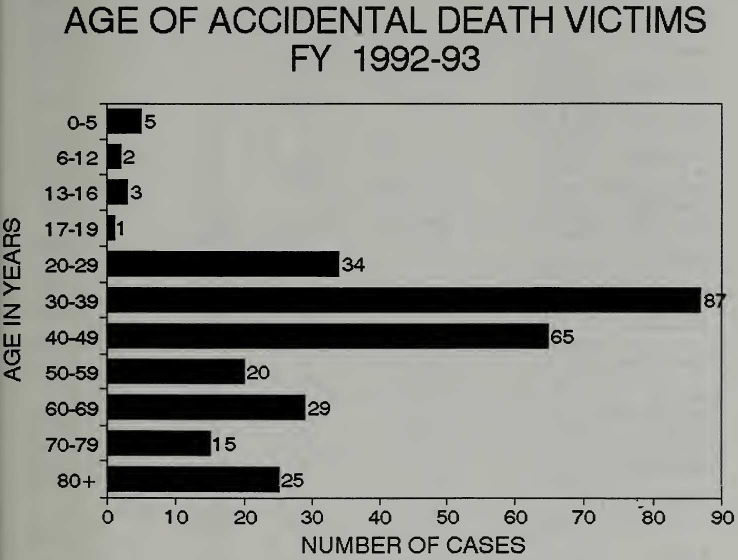

AGE OF ACCIDENTAL DEATH VICTIMS
FY 1992-93
AGE IN YEARS
0-5
6-12
13-16
17-19
20-29
30-39
40-49
50-59
60-69
70-79
80+
5
2
3
1
34
87
65
20
29
15
25
0
10
20
30
40
50
60
70
80
90
NUMBER OF CASES

Figure 15.

TABLE XII. ACCIDENTAL DEATH SITUATIONS BY RACE

	Race				
	White	Black	Asian	Other	Total
Method					
Asphyxia	3 (60%)*	1 (20%)	1 (20%)	0	5
Aspiration	3 (50%)	1 (17%)	2 (33%)	0	6
Burns	4 (100%)	0	0	0	4
Drowning	2 (40%)	1 (20%)	2 (40%)	0	5
Drug/Alcohol Abuse Rel	14 (78%)	4 (22%)	0	0	18
Drug O.D.	113 (72%)	34 (22%)	5 (3%)	4 (3%)	156
Hanging	1 (100%)	0	0	0	1
Falls	44 (76%)	3 (5%)	11 (19%)	0	58
Firearms	1 (100%)	0	0	0	1
Head Trauma	3 (50%)	2 (33%)	1 (17%)	0	6
Medical Misadventure	5 (62%)	2 (25%)	1 (13%)	0	8
Smoke/CO Inhalation	4 (67%)	1 (17%)	1 (17%)	0	6
Hypothermia	2 (67%)	1 (33%)	0	0	3
Other	4 (44%)	1 (11%)	3 (33%)	1 (11%)	9
Totals	203 (71%)	51 (18%)	27 (9%)	5 (2%)	286

* Row percentages refer to percentages by race for each mode. These can be compared to total percentages for each race to see whether a mode is more or less prevalent in a racial group For instance, deaths from drowning appear to occur less frequently in whites (40%) than the general involvement of whites in accidents (71%). Deaths from falls occur less frequently in blacks (5%) than would be anticipated, based on the overall involvement of blacks in accidental deaths (18%). Deaths due to smoke inhalation appear to occur more frequently in Asians (17%) than would be anticipated, based on the involvement of Asians in accidental deaths (9%).

TABLE XIII. ACCIDENTAL DEATH SITUATIONS BY AGE

	Age Range										
Method	0-5	6-12	13-16	17-19	20-29	30-39	40-49	50-59	60-69	70-79	80+
Asphyxia	1 (20%)	1 (20%)	0	0	1 (20%)	0	0	2 (40%)	0	0	0
Aspiration	0	1 (17%)	0	0	0	1 (17%)	0	0	2 (33%)	1 (17%)	1 (17%)
Burns	0	0	0	0	0	0	0	0	2 (50%)	1 (25%)	1 (25%)
Drowning	1 (20%)	0	0	0	0	2 (40%)	0	1 (20%)	0	0	1 (20%
Drug/Alc Abuse Rel	0	0	0	0	3 (17%)	9 (50%)	5 (28%)	0	1 (6%)	0	0
Drug O.D.	0	0	1 (1%)	1 (1%)	23 (15%)	63 (40%)	47 (30%)	11 (7%)	7 (4%)	2 (1%)	1 (1%)
Hanging	0	0	0	0	1 (100%)	0	0	0	0	0	0
Falls	1 (2%)	0	1 (2%)	0	4 (7%)	5 (9%)	4 (7%)	4 (7%)	15 (26%)	5 (9%)	19 (33%)
Firearms	0	0	1 (100%)	0	0	0	0	0	0	0	0
Hypothermia	0	0	0	0	0	2 (67%)	1 (33%)	0	0	0	0
Head Trauma	0	0	0	0	2 (33%)	1 (17%)	1 (17%)	1 (17%)	1 (17%)	0	0
Medical Misad.	0	0	0	0	0	0	4 (50%)	1 (12%)	1 (12%)	2 (25%)	0
Smoke/CO Inhal.	1 (17%)	0	0	0	0	1 (17%)	2 (33%)	0	0	1 (17%)	1 (17%)
Other	1 (11%)	0	0	0	0	3 (33%)	1 (11%)	0	0	3 (33%)	1 (11%)
TOTALS	5	2	3	1	34	87	65	20	29	15	25
% OF TOTAL	2%	1%	1%	0.3%	12%	30%	23%	7%	10%	5%	9%

* Row percents refer to percentage by age range for each mode. These can be compared to total percentages for each age range to see if a mode is more or less prevalent in an age group. For example, smoke/CO inhalation occurred more frequently in the 0-5 years of age group (17%) than the general involvement of this age group in accidents (2%) while falls in the 30-39 year age group occurred less frequently (9%) than all accidents in this age group (30%). Falls in the age group 60-80+ occurred more frequently (68%) than all accidents in this age group (24%).

TABLE XIV. ACCIDENTAL DEATH SITUATIONS BY SEX

	Sex	
	Male	Female
Method		
Asphyxia	3 (60%)*	2 (40%)
Aspiration	5 (83%)	1 (17%)
Burns	2 (50%)	2 (50%)
Drowning	3 (60%)	2 (40%)
Drug/Alcohol Abuse Related	13 (72%)	5 (28%)
Drug O.D.	132 (85%)	24 (15%)
Hanging	1(100%)	0 (0%)
Falls	35 (60%)	23 (40%)
Firearms	1(100%)	0 (0%)
Head Trauma	6(100%)	0 (0%)
Medical Misadven.	4 (50%)	4 (50%)
Hypothermia	2 (67%)	1 (33%)
Smoke/CO Inhal.	5 (83%)	1 (17%)
Other	6 (67%)	3 (33%)
TOTALS	218	68
% OF TOTAL	76%	24%

* Row percents refer to percentages by sex for each mode. These can be compared to total percentages for each sex to see whether a mode is more or less prevalent in one sex. For example, drug overdoses appear to occur more frequently in males (85%) than the general involvement of males in accidents (76%), while deaths from burns occur more frequently in females (50%) than all accidents in females (24%).

VEHICULAR DEATHS

In 1992-93, there were 79 vehicular fatalities in San Francisco. The number of such fatalities by type are indicated in Figure 16, page 36 and Table XV, page 37. Percentages of all vehicular fatalities by type are shown in Table XV, page 37. The largest number of vehicular fatalities involved pedestrians; the second largest number involved motorcycle drivers. Automobile driver fatalities have decreased from 21 in 1990-91 to 10 in 1991-92 with only a small increase to 11 in 1992-93. Automobile passenger fatalities have decreased by 50% from 1990-91 (16) to 1991-92 (8), and showed a further decrease to 6 in 1992-93. Pedestrian fatalities increased by 37% from 1990-91 (27) to 1991-92 (37), with a slight further increase to 39 in 1992-93.

Of the vehicular fatalities tested for alcohol (i.e. those in the hospital for less than 24 hours), truck drivers had the highest average blood ethyl alcohol concentration (0.22%). Motorcycle drivers were the vehicular fatalities with the highest percentage of both alcohol and drugs present (9%).

Abuse Drug Involvement (Table XVI, page 37)

Cocaine was the abuse drug seen most frequently in vehicular fatalities (2 cases) as compared to 9 cases in 1991-92. The number of vehicular fatalities with abuse drugs present was 4 during 1992-93, a decrease of 60% from 10 cases seen in 1991-92.

Age Distribution (Table XVII, p. 38, Table XVIII, p. 39, and Figure 17, p. 38)

The average age of motorcycle drivers was 32 years as compared to the average age of auto drivers (57 years) who were vehicular fatalities during 1992-93. The mean age of auto drivers, followed closely by that of pedestrians dying as traffic fatalities (56 years), was the highest seen for any type of traffic fatality with the 50+ year age group being overrepresented in the pedestrian fatalities (56%) as compared to the overall involvement of this age group in all types of traffic fatalities (43%). There was an increase in pedestrian fatalities in the 50+ year age group from 1990-91 (13) to 1991-92 (20) to 22 in 1992-93. There was a 48% increase in vehicular deaths in the 50+ year age group and a 56% decrease in the 20-29 year age group as compared to 1991-92!

Distribution by Sex (Table XVIII, page 39)

Males were the predominant victims in all types of vehicular fatalities (70%).

Racial Distribution (Table XVIII and Figure 18, page 39)

Overall, vehicular fatalities occur more frequently in whites(62%). Asians were represented more heavily among deaths of pedestrians (28%) and auto drivers (27%) than would be expected by their involvement in all vehicular fatalities (19%). While blacks were most heavily represented among auto driver fatalities (36%) during 1989-90, interestingly there were no fatalities in black auto drivers during either 1990-91 or 1991-92. In 1992-93, 27% of all auto driver fatalities were black. The percentage of white auto driver fatalities increased from 29% of the total in 1989-90 to 57% of the total in 1990-91 and to 70% of the total in 1991-92! This decreased dramatically to 27% of the total in 1992-93.

VEHICULAR DEATHS

In San Francisco, there were 79 vehicle-related fatalities (62 accidents, 14 homicides, 1 death ruled to be a suicide and 2 with mode equivocal/undetermined), accounting for 5% of the Medical Examiner death investigations for the fiscal year 1992-93.

TYPES OF VEHICULAR DEATHS
FY 1992-93

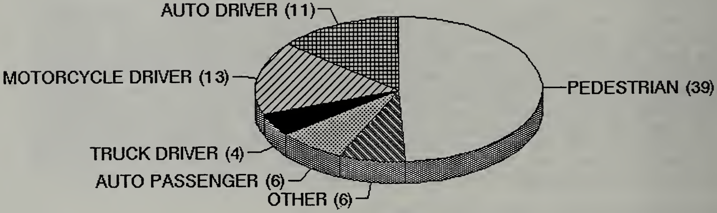


Figure 16.

TABLE XV. VEHICULAR FATALITIES IN 1992-1993

Drug and Alcohol Involvement

METHOD	NO.	% WITH ALCOHOL*	AVE. ALC. CONC. (g%)	% WITH DRUGS*	% WITH DRUGS+ALC
PEDESTRIAN	39 (49%)	18	0.15	13	0
AUTO DRIVER	11 (14%)	27	0.19	10	0
AUTO PASSENGER	6 (8%)	50	0.08	0	0
MOTORCYCLE DRIVER	13 (16%)	54	0.16	18	9
TRUCK PASSENGER	2 (3%)	100	0.10	0	-
BICYCLE DRIVER	2 (3%)	0	-	0	0
TRUCK DRIVER	4 (5%)	25	0.22	0	-
OTHER	2 (3%)	0	-	-	0

* Refers to percentages of victims (of those tested) with positive blood ethyl alcohol levels.

** Refers to percentage of victims (of those tested) with positive blood tests for abuse drugs.

TABLE XVI. ABUSE DRUGS PRESENT IN VEHICULAR FATALITIES

	Drugs			
Situation	Cocaine	PCP	Heroin	Amphetamines
PEDESTRIAN	1	0	1	0
AUTO DRIVER	0	0	0	0
AUTO PASSENGER	0	0	0	0
MOTORCYCLE DRIVER	1	0	0	1
TRUCK PASSENGER	0	0	0	0
BICYCLE DRIVER	0	0	0	0
TRUCK DRIVER	0	0	0	0
OTHER	0	0	0	0
TOTALS	2	0	1	1

TABLE XVII. VEHICULAR FATALITIES BY AGE

Situation	Age 0-5	 6-12	 13-16	 17-19	 20-29	 30-39	 40-49	 50-59	 60-69	 70-79	 80+
AUTO DRIVER	0	0	0	0	1 (9%)	2 (18%)	0	3 (27%)	1 (9%)	4 (36%)	0
AUTO PASSENGER	0	0	0	1 (17%)	2 (33%)	0	1 (17%)	0	0	0	2 (33%)
MOTORCYCLE DRIVER	0	0	0	0	6 (46%)	5 (38%)	2 (15%)	0	0	0	0
TRUCK PASSENGER	0	0	0	1 (50%)	1 (50%)	0	0	0	0	0	0
PEDESTRIAN	1 (3%)	1 (3%)	1 (3%)	1 (3%)	1 (3%)	6 (15%)	6 (15%)	2 (5%)	4 (10%)	10 (26%)	6 (14%)
BICYCLE DRIVER	0	1 (50%)	1 (50%)	0	0	0	0	0	0	0	0
TRUCK DRIVER	0	1 (25%)	0	1 (25%)	1 (25%)	0	0	0	0	1 (25%)	0
OTHER	0	1 (50%)	0	0	0	0	0	0	1 (50%)	0	0
TOTALS	1	4	2	4	12	13	9	5	6	15	8
% of total	(1%)	(5%)	(3%)	(5%)	(15%)	(16%)	(11%)	(6%)	(8%)	(19%)	(10%)

* Row percents refer to percentages by age group for each situation. These can be compared to total percentages for each age group to see if a situation is more or less prevalent in any age group. For example, accidental deaths of bicycle drivers in the 0-16 year age group occur more frequently (100%) than the general involvement of this age group in vehicular fatalities (9%). Deaths of pedestrians in the 20-29 year age group occur less frequently (3%) than all vehicular fatalities in this age group (15%) while such deaths in the 70+ year age group occur more frequently (41%) than the general involvement of this group in vehicular fatalities (29%).

Figure 17.

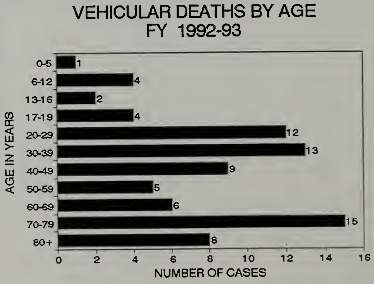


TABLE XVIII. DEMOGRAPHICS OF VEHICULAR FATALITIES

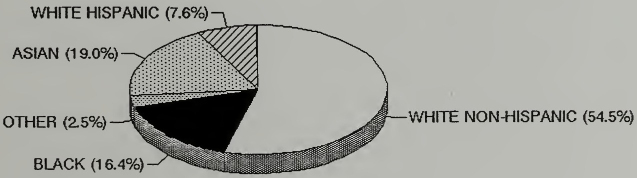
	Sex		Race					Age
Situation	%M	%F	%W-NH	%W-H	%B-NH	%A	%O	AVE. AGE
AUTO DRIVER	73	27	27	18	27	27	10	57
AUTO PASSENGER	50	50	50	0	50	0	0	46
MOTORCYCLE DRIVER	85	15	85	0	8	8	0	32
TRUCK PASSENGER	100	0	50	50	0	0	0	22
PEDESTRIAN	59	41	56	8	5	28	3	56
BICYCLE DRIVER	100	0	0	0	100	0	0	10
TRUCK DRIVER	100	0	25	0	50	0	25	32
OTHER	100	0	100	0	0	0	0	36
AVERAGE	70	30	54	8	16	19	3	48

The most notable change in demographics of vehicular fatalities from fiscal year 1991-92 was a decrease in the percentage of auto drivers who were white, from 80% in 1991-92 to 45% in 1992-93 and a concomitant increase in auto drivers who were black, from 0% in 1991-92 to 27% in 1992-93. The percentage of auto driver fatalities who were Asian also increased from 10% of the total in 1991-92 to 27% in 1992-93.

RACE OF VEHICULAR DEATH VICTIMS

FY 1992-93

Figure 18.



SUICIDES

The determination of suicide as a manner of death represents the summation of scene investigation, including a review of psychological state, autopsy, pathology, toxicology and, frequently, other investigation. To the best of our knowledge, ours is the only Medical Examiner's Office routinely performing toxicology testing on multiple organs and/or body fluids in order to evaluate the metabolic status of a drug or drugs.

Realizing the immense emotional impact on family, the diagnosis of suicide is never made lightly, and always represents a decision made on the basis of data sufficient to defend that decision in a court of law, if necessary. Should these data be inconclusive, the victim automatically gets the benefit of the doubt.

Suicide takes a tremendous toll of our young people. The relative number jumping from the Golden Gate bridge would not seem to warrant the publicity assigned them as compared to the evident need for help for individuals using other methods.

To help understand the problem, and hopefully, to aid in reduction of suicides, this office has supported suicide prevention and research programs for many years. It is hoped that this work will help to reduce this needless loss.

The majority of these deaths are situational reactions, and, if given momentary trained support, are potentially preventable.

SUICIDAL DEATHS

One hundred and thirty-three deaths were ruled to have been due to suicide during the 1992-93 fiscal year. However, the one motor vehicle death which was ruled to be by suicide is not included in the following tabulations; it was included under vehicular deaths. The number of individuals dying by each method of suicide are presented in Figure 19, page 43, and Table XIX, page 44, and the percentages of all suicidal deaths by type are indicated in Table XIX, page 44, along with alcohol and drug involvement for each mode.

Abuse Drug Involvement (Table XX, page 44)

Abuse drugs were present in 17 cases of suicidal deaths in 1992-93 as compared to 20 cases in 1991-92. The abuse drugs seen most frequently in suicidal deaths were cocaine (11 cases) and heroin (measured as morphine) (4 cases). This contrasts with 10 cases of suicide with heroin present in 1991-92. Amphetamines and PCP were found in 1 case each of suicidal deaths in 1992-93, the same as in 1991-92. Abuse drugs were associated more frequently with deaths caused by hanging (6 cases) than with any other mode of suicide. Abuse drugs may have played a role in suicidal deaths by firearms (5 cases).

Racial Distribution (Table XXI and Figure 20, page 45)

Deaths from suicide occurred most frequently in whites (81% of total suicides). This was also true for all modes of suicide separately except for drowning which occurred predominantly in Asians (67%). The white racial group has been divided into Hispanic and non-Hispanic in this tabulation. It can be seen that the white Hispanic group was involved in only 4% of all suicides but in 9% of all suicides by hanging and 10% of all suicides by overdose. The mode of hanging also was used more frequently by blacks (14%) than would have been expected by the overall percentage of suicides by blacks (6%).

Age Distribution (Table XXII, p. 46, Table XXIII, p. 47 and Figure 21, p. 47)

There were no deaths by suicide in the 13-16 year age group during this fiscal year as compared to 2 in 1991-92. There were 2 suicides in the 17-19 year age group as compared to 4 in 1991-92. There was a 46% decrease in the number of suicides in the 20-29 year age group (from 26 to 14) as compared to the previous fiscal year. The number of suicides during this fiscal year in the 50-59 year age group (13) maintained the decrease first seen from 29 in 1990-91 to 14 in 1991-92. The 40-49 year age group has the highest percentage of suicides of any age group with deaths from drug overdoses being particularly prevalent in this age group. Death by firearms appears to be the mode of suicide used most frequently by older adults with 29% of the deaths of those over age 60 being due to gunshot.

Distribution by Sex (Table XXIV, page 48)

Males were more likely than females to commit suicide in 1992-93 (73% male, 27% female).

SUICIDES

Suicides are self-inflicted deaths. In San Francisco, the 132 suicides which are being tabulated account for 8.2% of the Medical Examiner death investigations for the fiscal year of 1992-93.

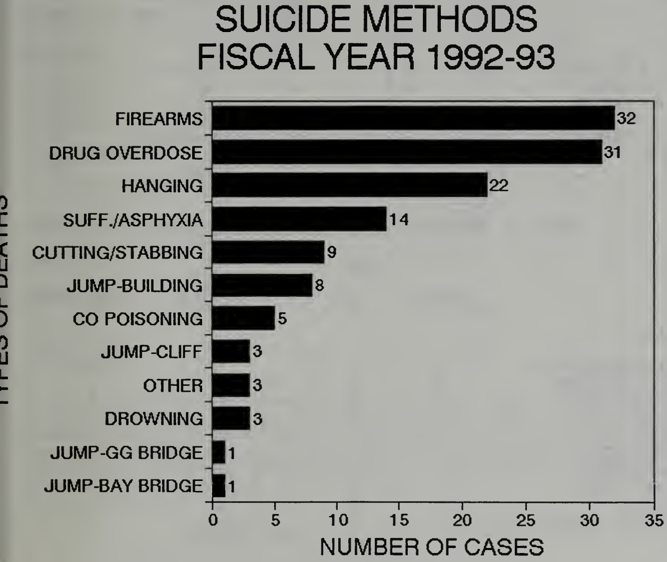


Figure 19.

TABLE XIX. SUICIDAL DEATHS BY MODE

Drug and Alcohol Involvement

METHOD	NUMBER	% OF TOTAL SUICIDES	% WITH ALCOHOL	AVE. ALC. CONC.(g%)	% WITH DRUGS
DRUG/POISON OVERDOSE	31	23.5	14	0.11%	-
FIREARMS	32	24.2	28	0.22%	42
HANGING	22	16.7	36	0.16%	62
JUMP-BUILDING	8	6.1	38	0.06%	14
ASPHYXIA/ SUFFOCATION	14	10.6	71	0.15%	67
SMOKE/CO POISONING	5	3.8	40	0.08%	80
JUMP-GG BRIDGE	1	0.8	-	-	0
JUMP-BAY BRIDGE	1	0.8	0	-	100
JUMP-CLIFF	3	2.3	0	-	67
CUTTING/STABBING	9	6.8	22	0.30%	80
DROWNING	3	2.3	67	0.10%	0
OTHER	3	2.3	0	-	50

TABLE XX. ABUSE DRUGS PRESENT IN SUICIDAL DEATHS

	Drugs			
Situation	Cocaine	PCP	Morphine	Amphetamines
ASPHYXIA/SUFFOCATION	0	0	1	0
SMOKE/CO POISONING	0	0	1	0
CUTTING/STABBING	0	0	1	0
FIREARMS	4	0	1	0
HANGING	5	0	0	1
JUMP-BUILDING	0	0	0	0
JUMP-GG BRIDGE	0	0	0	0
JUMP-BAY BRIDGE	1	0	0	0
JUMP-CLIFF	0	0	0	0
DRUG/POISON OVERDOSE	1	1	0	0
DROWNING	0	0	0	0
TOTALS	11	1	4	1

TABLE XXI. SUICIDE METHODS BY RACE

	Race					
Method	W-NH	W-H	B-NH	Asian	Other	Total
Asphyxia/Suffoc.	14 (100%)	0	0	0	0	14
Smoke/CO Poisoning	3 (60%)	0	1 (20%)	1 (20%)	0	5
Cutting/Stabbing	8 (89%)	0	0	1 (11%)	0	9
Drug/Poison OD	22 (71%)	3 (10%)	2 (6%)	3 (10%)	1 (3%)	31
Drowning	1 (33%)	0	0	2 (67%)	0	3
Firearms	26 (81%)	0	2 (6%)	4 (12%)	0	32
Hanging	14 (64%)	2 (9%)	3 (14%)	3 (14%)	0	22
Jump-Building	8 (100%)	0	0	0	0	8
Jump-GG Brdg	0	0	0	1 (100%)	0	1
Jump-Bay Bridge	1 (100%)	0	0	0	0	1
Jump-Cliff	3 (100%)	0	0	0		3
Other	2 (67%)	0	0	1 (33%)	0	3
TOTALS (NO.)	102	5	8	16	1	132
% OF TOTALS	77%	4%	6%	12%	1%	

* Row percentages refer to percentages by race for each method. These can be compared to total percentages for each race to see whether a method is more or less prevalent in a racial group. For instance, suicides by drowning appear to occur more frequently in Asians (67%) than the general involvement of Asians in suicides (12%), and deaths by hanging in white/Hispanics (9%) occur more frequently than all suicides in white/Hispanics (4%).

RACE OF SUICIDE VICTIMS
FY 1992-93

Figure 20.

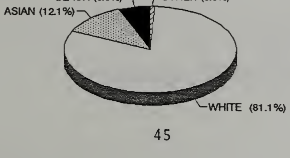


TABLE XXII. SUICIDE METHODS BY AGE

Method	Age 13-16	17-19	20-29	30-39	40-49	50-59	60-69	70-79	80-89	90-99
Asphyxia/Suffoc.	0	0	0	0	4 (29%)	1 (7%)	2 (14%)	5 (36%)	2 (14%)	0
Smoke/CO Poisoning	0	0	1 (20%)	2 (40%)	0	2 (40%)	0	0	0	0
Cutting/Stabbing	0	0	1 (11%)	2 (22%)	2 (22%)	1 (11%)	2 (22%)	1 (11%)	0	0
Drowning	0	0	0	1 (33%)	1 (33%)	1 (33%)	0	0	0	0
Drug/Poison O.D.	0	0	2 (6%)	8 (26%)	12 (39%)	4 (13%)	4 (13%)	1 (3%)	0	0
Firearms	0	2 (6%)	3 (9%)	6 (19%)	9 (28%)	2 (6%)	2 (6%)	4 (12%)	3 (9%)	1 (3%)
Hanging	0	0	7 (32%)	7 (32%)	3 (14%)	0	1 (4%)	3 (14%)	1 (4%)	0
Jump-Building	0	0	0	2 (25%)	3 (38%)	1 (12%)	0	0	2 (25%)	0
Jump-GG Bridge	0	0	0	0	1 (100%)	0	0	0	0	0
Jump-Bay Bridge	0	0	0	1 (100%)	0	0	0	0	0	0
Jump-Cliff	0	0	0	3 (100%)	0	0	0	0	0	0
Other	0	0	0	0	1 (33%)	1 (33%)	1 (33%)	0	0	0
TOTAL NO.	0	2	14	32	36	13	12	14	8	1
% OF TOTAL	0%	2%	11%	24%	27%	10%	9%	11%	6%	1%

* Row percents refer to percentage by age range for each method. These can be compared to total percentages for each age range to see if a method is more or less prevalent in an age group. For example, hanging appears to occur more frequently in the 20-29 years of age group (32%) than the general involvement of this age group in suicides (11%) while deaths by hanging in the 40-49 year age group (14%) occur less frequently than all suicides in this age group (27%).

SUICIDES

TABLE XXIII. AGE RANGES - COMPARISON BY YEAR

Age Range	'85-'86	'86-'87	'87-'88	'88-'89	'89-'90	'90-'91	'91-'92	'92-'93
0 - 19	7	2	6	3	1	2	6	2
20 - 29	29	22	36	30	18	20	28	14
30 - 39	46	45	28	33	39	37	34	32
40 - 49	18	28	24	28	30	23	30	36
50 - 59	18	30	23	22	12	29	14	13
60 - 69	19	20	19	19	11	15	12	12
70 - 79	12	12	17	21	6	19	17	14
80 - 89	10	9	5	11	7	8	9	8
90 - 99	2	3	4	3	4	1	3	1
Unknown	0	0	0	1	0	0	0	0

SUICIDE VICTIMS BY AGE
FY 1992-93

Figure 21.

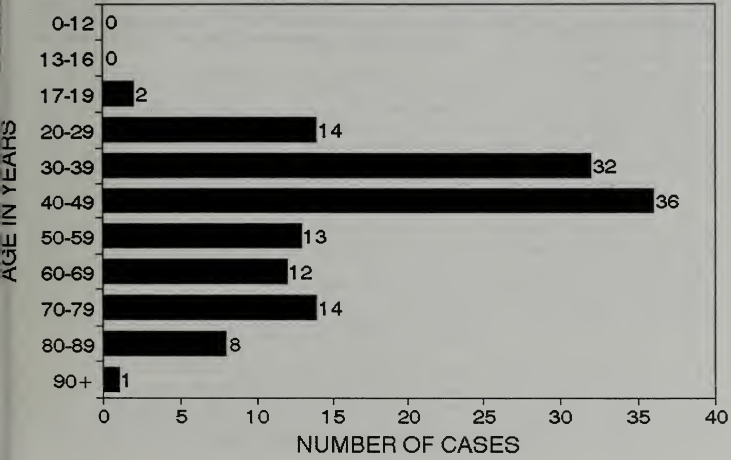


TABLE XXIV. SUICIDE METHODS BY SEX

Method	Sex Male	 Female
Asphyxia/Suffocation	6 (43%)	8 (57%)
Smoke/CO Poisoning	4 (80%)	1 (20%)
Cutting/Stabbing	8 (89%)	1 (11%)
Drowning	3 (100%)	0 (0%)
Drug/Poison Overdose	22 (71%)	9 (29%)
Firearms	26 (81%)	6 (19%)
Hanging	16 (73%)	6 (27%)
Jump-Building	6 (75%)	2 (25%)
Jump-GG Bridge	1 (100%)	0 (0%)
Jump-Bay Bridge	1 (100%)	0 (0%)
Jump-Cliff	2 (67%)	1 (33%)
Other	2 (67%)	1 (33%)
TOTALS	97 (73%)	35 (27%)

* Row percents refer to percentages by sex for each mode. These can be compared to total percentages for each sex to see whether a mode is more or less prevalent in one sex. For example, deaths by cutting/stabbing appear to occur more frequently in males (89%) than the general involvement of males in suicides (73%), while females die by asphyxia/suffocation more frequently (57%) than all suicides in females (27%).

HOMICIDE

Homicide is the killing of one human being by another. Murder is the unlawful killing of a human being with malice. The following data do not differentiate homicide as to whether it was justifiable, accidental, or murder. Such distinctions are the proper function of the judicial system and are not the responsibility or function of this office.

Any judicial system which deals with crimes involving death requires a well-trained staff and well-equipped Medical Examiner's Office which can and will interpret forensic findings in an unbiased, fair manner. Their investigation must be intense, accurate and rapid enough so that charges may be pursued or dismissed without unfairly affecting an individual's constitutional rights. This is the purpose of this office.

The proper evaluation and investigation of a homicide begins, naturally, at the scene. In the majority of cases, a staff member of this office (either the Investigator, Administrative Coroner, or Medical Examiner), determines whether a death is potentially a homicide. It has been well-documented that, if such a determination is made by an individual inexperienced or untrained in death investigation, his opinion will be wrong in 50% of the cases. Such a person is very apt to miss the subtle homicide and is more inclined to miscall a natural or accidental death as homicide, resulting in false arrest, false accusations, needless expenditure of public funds, waste of investigative time and delay in the investigation of other deaths.

The Investigator responds to the scene of death and determines whether the Police Homicide Detail will be called. When homicide is obvious, the Investigator responds as part of a team (other members include homicide investigators, photographers and criminologists). This office is responsible for the body, identification, inquiry into circumstances, manner and means of death (Gov. Code 27491.2). In addition to the scene investigation, the Investigator is responsible for recovering property, locating and notifying next of kin, and preparing a written summary of his investigation.

In about one-third to one-half of all homicides, a forensic pathologist will respond to the scene and aid in the investigation. The subsequent autopsy may also use photography, fluoroscopy, X-ray, angiography and other techniques to establish and define the number, nature and severity of wounds, to obtain evidence (i.e. bullets) and to prepare an official report. This report, including chemistry, serology and toxicology results, is used as part of the prosecution or defense of the case in the formal judicial hearing.

Pertaining to criminal trial, our judicial system requires identification of an individual and presentation of evidence, usually by virtue of expert testimony, relative to the cause of death or trauma associated with death. The Medical Examiner's Office identifies the body, frequently relying on local police, CII, or FBI fingerprints. Expert forensic testimony is given by

the Forensic Pathologist from this office. In addition, the Forensic Toxicologist is frequently called upon to testify on the significance and effect of various drug levels, a matter of great importance when dealing with the concept of diminished capacity.

Of minor, but increasing importance, is the fact we are seeing more homicide and trauma cases transferred into the County for medical therapy because of San Francisco's excellent and advanced medical facilities. Should these individuals die, the autopsy and court testimony are done by this office.

HOMICIDE DEATHS

One hundred and forty-one deaths were ruled to have been due to homicide during the 1992-93 fiscal year. Of these, 14 were vehicular homicides and have been discussed in the "Vehicular Deaths" section. The remaining 127 homicide deaths are the basis for the tabulations in this section. The number of individuals dying by each manner of death are indicated in Figure 22, page 52 and Table XXV, page 53; percentages of all homicides represented by specific methods are indicated in Table XXV, page 53. The total number of non-vehicular homicides increased by only 3% from 123 in 1991-92 to 127 in 1992-93. The number of homicide deaths by firearms increased 7%, from 70 to 75. Of the homicide victims tested for alcohol and drugs (those in the hospital for less than 24 hours), more than 33% had positive blood alcohol levels; more than 37% had drugs present. The percent of homicide victims with positive blood tests for drugs varied with the method of homicide with 34% of those dying by firearms and 45% of those dying from stabbing having drugs present.

Abuse Drug Involvement (Table XXVI, page 53)

Cocaine was the abuse drug seen most frequently in homicide victims, being present in 38 homicide cases as compared to 42 such cases in 1991-92. Cocaine was associated most strongly with deaths by gunshot wound, with 23 of the 38 cases with cocaine present (61%) being deaths due to gunshot wound. Stabbing was the homicide method which was associated with drugs next most frequently; cocaine was present in 9 cases who died by stabbing.

Racial Distribution (Table XXVII and Figure 23, page 54)

Overall, deaths by homicide occurred with equal frequency in blacks and white (44%). Deaths by stabbing occurred with greater frequency in white/ non-Hispanics (42%) than in either blacks (38%) or Asians (12%). Deaths by gunshot occurred more frequently in blacks (52% of all gun-shot deaths) than would have been predicted by the overall involvement of blacks in homicides of all types (44%) and less frequently in white/non-Hispanics (23%) than would have been predicted by their involvement in homicides of all types (31%).

Age Distribution (Fig. 24, p. 55, Tables XVIII and XXIX, p. 56 and Table XXXI, p. 57)

There were 16 homicides in the 0-19 year age group, a decrease of 20% from 1991-92. Death by firearms accounted for 8 or 50% of these homicides. The peak occurrence of deaths due to firearms was in the 20-29 year age group and of those due to stabbing, in the 30-39 year age group. Of deaths due to firearms, 71% were in the 20-39 year age group as were 42% of the stabbing deaths. There were 7 homicides in individuals age 70 or over during 1992-93. As can be seen from Table XXXI, the mean age of homicide victims varies with the mode, with no clear pattern observed for both males and females for any mode.

Distribution by Sex (Table XXX, page 57)

Males were more than 4.5 times as likely to be homicide victims as females.

NON-VEHICULAR HOMICIDES

Homicides are those deaths caused by another person, generally resulting in murder and manslaughter charges. In San Francisco, 127 non-vehicular homicides occurred in 1992-93, accounting for 8% of the total Medical Examiner investigations.

Figure 22.

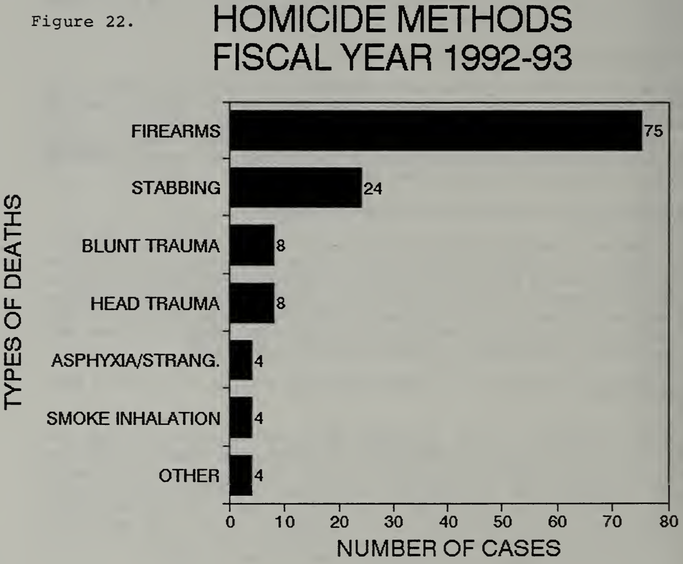


TABLE XXV. HOMICIDAL DEATHS BY MODE

Drug and Alcohol Involvement

METHOD	NUMBER	% OF TOTAL HOMICIDES	% WITH ALCOHOL*	AVE. ALC. CONC.(g%)	% WITH DRUGS**
FIREARMS	75	59	32	0.12%	34
STABBING	24	19	50	0.09%	45
BLUNT TRAUMA	8	6	14	0.31%	50
ASPHYXIA/ STRANGULATION	4	3	50	0.14%	25
HEAD TRAUMA	8	6	29	0.21%	17
SMOKE INHALATION	4	3	0	-	50
OTHER	4	3	33	0.04%	0

* Refers to percentage of victims (of those tested) with positive blood ethyl alcohol concentrations

** Refers to percentage of victims (of those tested) with positive blood tests for abuse drugs.

TABLE XXVI. DRUGS PRESENT IN NON-VEHICULAR HOMICIDAL DEATHS

	Drugs			
Situation	Cocaine	PCP	Heroin	Amphetamines
ASPHYXIA/STRANGULATION	0	0	0	1
TRAUMATIC INJURIES	4	0	0	0
GUNSHOT WOUND	23	0	0	0
STABBING	9	0	1	2
SMOKE INHALATION	2	0	0	0
OTHER	0	0	0	0
TOTALS	38	0	1	3

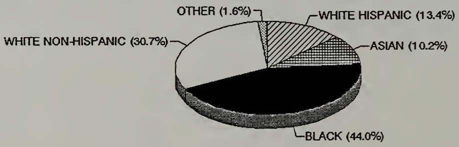
TABLE XVII. HOMICIDE METHODS BY RACE

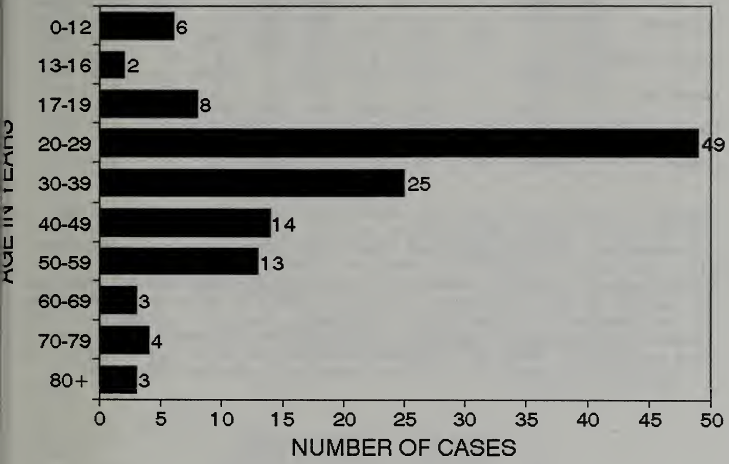
Method	Race W-NH	 W-H	 B-NH	 Asian	 Other	Total
Asphyxia/Strang.	3 (75%)	0	0	1 (25%)	0	4
Head Trauma	2 (25%)	2 (25%)	2 (25%)	2 (25%)	0	8
Firearms	17 (23%)	13 (17%)	39 (52%)	4 (5%)	2 (3%)	75
Stabbing	10 (42%)	2 (8%)	9 (38%)	3 (12%)	0	24
Blunt Trauma	3 (38%)	0	2 (25%)	3 (38%)	0	8
Smoke Inhalation	0	0	4 (100%)	0	0	4
Other	4 (100%)	0	0	0	0	4
TOTALS	39	17	56	13	2	127
% OF TOTAL	31%	13%	44%	10%	2%	

* Row percentages refer to percentages by race for each method. These can be compared to total percentages for each race to see whether a method is more or less prevalent in a racial group. For instance, death by asphyxia appears to occur more frequently in white/non-Hispanics (75%) than the general involvement of white/non-Hispanics in homicides (31%) while deaths due to head trauma appear to occur less frequently in blacks (25%) than all homicides in blacks (44%).

RACE OF HOMICIDE VICTIMS
FY 1992-93

Figure 23.





HOMICIDE VICTIMS BY AGE
FY 1992-93

Figure 24.

TABLE XVIII. HOMICIDE METHODS BY AGE

	Age									
Method	0-12	13-16	17-19	20-29	30-39	40-49	50-59	60-69	70-79	80+
Asphyxia/Strang.	0	0	0	2 (50%)	0	0	1 (25%)	0	0	1 (25%)
Head Trauma	1 (12%)	0	0	0	3 (38%)	1 (12%)	0	2 (25%)	0	1 (12%)
Firearms	0	2 (3%)	6 (8%)	43 (57%)	10 (13%)	5 (7%)	7 (9%)	0	1 (1%)	1 (1%)
Blunt Trauma	2 (25%)	0	1 (12%)	2 (25%)	1 (12%)	0	1 (12%)	0	1 (12%)	0
Stabbing	1 (4%)	0	1 (4%)	2 (8%)	8 (33%)	6 (25%)	4 (17%)	0	2 (8%)	0
Smoke Inhalation	2 (50%)	0	0	0	1 (25%)	1 (25%)	0	0	0	0
Other	0	0	0	0	2 (50%)	1 (25%)	0	1 (25%)	0	0
TOTALS	6	2	8	49	25	14	13	3	4	3
% OF TOTALS	(5%)	(2%)	(6%)	(39%)	(20%)	(11%)	(10%)	(2%)	(3%)	(2%)

* Row percents refer to percentage by age range for each method. These can be compared to total percentages for each age range to see if a method is more or less prevalent in an age group. For example, deaths by firearms occur more frequently in the 20-29 year age group (57%) than the general involvement of this age group in homicides (39%) while such deaths occur less frequently in the 30-39 year age group (13%) than all homicides in this age group (20%).

TABLE XXIX. HOMICIDE VICTIMS AGE RANGES - COMPARISON BY YEAR

	YEAR							
Age range	'85-'86	'86-'87	'87-'88	'88-'89	'89-'90	'90-'91	'91-'92	'91-'92
0 - 19	9	8	16	18	16	13	19	16
20 - 29	40	28	28	31	28	37	39	49
30 - 39	27	27	41	28	28	27	32	25
40 - 49	18	18	12	15	15	12	17	14
50 - 59	7	11	13	9	6	5	10	13
60 - 69	4	8	8	4	5	5	0	3
70 and above	15	10	5	2	6	5	6	7

TABLE XXX. HOMICIDE METHODS BY SEX

	Sex	
Method	Male	Female
Asphyxia/Strangulation	2 (50%)	2 (50%)
Head Trauma	7 (88%)	1 (12%)
Firearms	66 (88%)	9 (12%)
Blunt Injuries	6 (75%)	2 (25%)
Stabbing	18 (75%)	6 (25%)
Smoke Inhalation	2 (50%)	2 (50%)
Other	3 (75%)	1 (25%)
TOTALS	104	23
% OF TOTALS	(82%)	(18%)

* Row percents refer to percentages by sex for each mode. These can be compared to total percentages for each sex to see whether a mode is more or less prevalent in one sex. For example, deaths from firearms occur less frequently in females (12%) than the general involvement of females in homicides (18%), while deaths from smoke inhalation in males (50%) occur less frequently than all homicides in males (82%).

TABLE XXXI. MEAN AGE FOR HOMICIDE VICTIMS BY METHOD AND SEX (Age in Years)

Method	Male	Female
Asphyxia/Strangulation	68	26
Head Trauma	41	67
Firearms	29	39
Blunt Trauma	31	32
Stabbing	38	46
Smoke Inhalation	40	1
Other	41	65

The lowest mean age for males was seen in deaths by firearms. The lowest mean age for females was seen in victims of asphyxia/suffocation.

PATHOLOGY

In the Pathology Department, tissue and body fluid samples taken at autopsy are prepared for microscopic study, histochemically stained, or analyzed for chemical constituents. Cardiac pacemakers or other mechanical life-support devices are examined for any defect. Smears or "wet-mounts" are examined for spermatozoa, bacteria, or tuberculosis. Bacteriologic cultures may be taken. However, if pathogens are grown, they are usually sent to the Department of Public Health (State or local) for further identification. If indicated, "soft" X-rays or histochemical tests are done to establish entrance or exit gunshot wounds. New research techniques, such as methods of obtaining fingerprints from the skin of a victim, are developed here also.

MONTHLY FIGURES

1992-1993

PATHOLOGY*

YEAR	TOTAL MED-EXAM CASES	CASES REFERRED TO PATHOLOGIST	NO. OF ORGANS SUBMITTED	NO. OF SECTIONS TAKEN	HISTO PATHOLOGIC SLIDES MADE	SPECIAL STAINS **	BLOOD TYPINGS ***	OTHE DETE TION
1992								
JUL	105	67	446	876	440	73	33	95
AUG	121	85	536	1077	585	64	32	339
SEP	144	100	557	1094	651	61	54	281
OCT	147	96	507	984	521	60	29	149
NOV	113	77	400	734	427	65	36	163
DEC	160	100	415	796	401	157	37	235
1993								
JAN	170	104	626	1117	583	56	43	315
FEB	117	83	619	1359	647	222	32	183
MAR	145	102	497	986	514	124	56	179
APR	138	100	672	1428	696	128	40	263
MAY	110	65	320	601	320	133	28	134
JUN	142	98	476	908	484	46	46	269
TOTALS	1612	1077	6071	11960	6269	1189	466	2605

*	These figures do not reflect photography, forensic radiology, or material prepared for teaching forensic pathology
**	Includes smears examined for bacteria and spermatozoa
***	ABO and Anti-Rh typing + blood drawings
****	Blood, urine, water, evidence for: hematology, biochemistry, urinalysis, bacteriology, serology, "Sickledix," etc. + blood drawing

TOXICOLOGY

Toxicology is the study of the interaction of foreign compounds, such as drugs, with living organisms (e.g. people). It involves knowing something of the nature of that interaction, how the foreign compounds break down (that is, how they are metabolized), and what effects they have on the health and behavior of the organism.

All of this information is vital to the role that toxicology plays in determining the cause of death, as well as in evaluating the significance of chemicals found in the living.

Generated within the Toxicology Department is information on samples from Medical Examiner's cases as well as from suspects in criminal cases (e.g.. homicides, driving under the influence, probation failure, (H & S 11550), assaults) and other persons to be tested at the request of various law enforcement agencies. The data obtained in these cases enable the toxicologist to assist in interpreting the behavior of the suspects involved, to advise the District Attorney, the Public Defender, the City Attorney, Police Department, the California Highway Patrol, and other agencies, and to give expert testimony in court as necessary in such cases as to the effect of drugs in the case. This application of toxicological facts to legal problems is Forensic Toxicology.

The Toxicology Department also performs analyses on samples submitted by the Police and Fire Departments in connection with the recruitment programs and other personnel requirements. The results in some cases are presented to the respective commission in official hearings. (For total cases submitted for testing and number of tests performed for 1990-91 and 1991-92, see Figures 25 and 26, respectively, on page 63).

Toxicological facts are determined through tests performed on biological samples (e.g. blood, urine, gastric contents, liver, etc.) taken at the time of autopsy or from living persons. The samples are subjected to a series of chemical manipulations designed to extract any drugs or other physiologically active compounds that may be present. The subsequent extracts are then examined by equipment set up to detect, accurately identify, and quantitate any materials that may be present. These determinations must be of unquestionable accuracy and as specific as scientifically possible, and they must be able to stand up to review by any other qualified laboratory in the nation.

The analytical methods most commonly used in the toxicological studies are gas and thin layer chromatography; ultraviolet, visible, and fluorescence spectrophotometry; and immunoassay techniques. Advanced techniques, such as mass spectrometry and HPLC (High Performance Liquid Chromatography) are used as necessary for confirmation of difficult samples. These precise and sophisticated methods require the use of advanced laboratory apparatus and highly trained personnel.

Levels of drugs in two or more body compartments (one of which is invariably blood) are routinely determined in order to answer the question of whether the drug use is acute or chronic. This approach is of the utmost importance in determining the time of ingestion and whether or not the intent of the ingestion was suicide.

The range of drugs available to the public is extremely wide, and the nature and type of compounds involved are highly variable. The methodologies necessary to conduct toxicological analyses have to be similarly wide-ranging and also continually expanded in order to keep up with the manufacture of new drugs, both legal and illegal. This is an important aspect of the Toxicology Department's work, often requiring extensive research. So, too, does the identification of "street-manufactured" compounds which are sometimes found in post-mortem samples. Also, with many drugs being compounded to have physiologic effects at very low doses, detection in body fluids is often extremely difficult.

The most common drugs in the community are alcohol and prescription items. However, illegal, or "street", drugs (especially morphine-type alkaloids [e.g. heroin], cocaine, and amphetamines) represent a very significant percentage of the compounds actually found in the cases presented to the Toxicology Department. Less commonly used drugs, industrial materials, certain gases, and various other foreign compounds have also been detected.

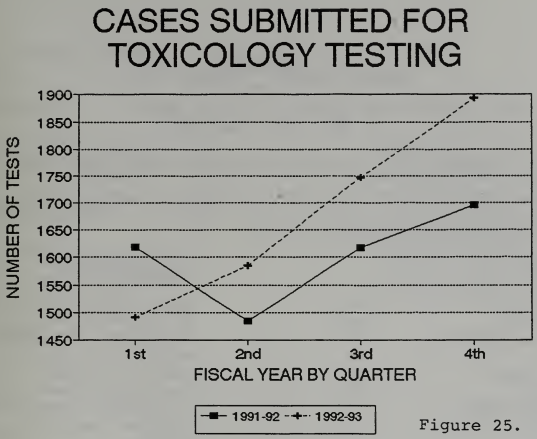


Figure 25.

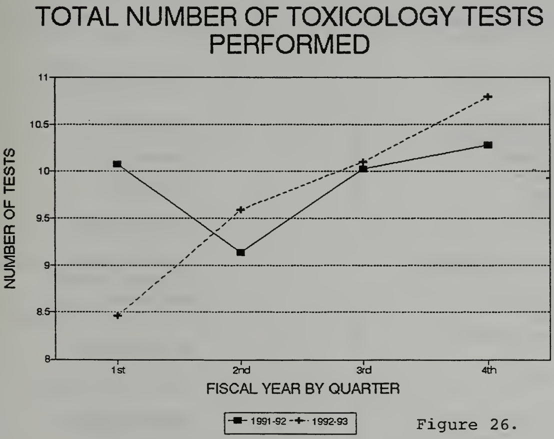


Figure 26.

TOXICOLOGY
MEDICAL EXAMINER - CORONER'S CASES

SAN FRANCISCO CITY AND COUNTY
July 1992 - June 1993

Incidence of drugs and other physiologically active material detected

The compounds listed are not necessarily the cause of death nor even a contribut factor. They are the toxic agents that were found to be present, either singly in combination, in Medical Examiner's cases.

ABUSE DRUGS

Cocaine	160
Benzoylecgonine	165*
Morphine-type alkaloids	141
Codeine	69
Methamphetamine	36
Amphetamine	33
Phencyclidine (PCP)	1
Delta-9 THC	1

ANTI-DEPRESSANTS

Amitriptyline (Elavil)	15
Nortriptyline (Aventyl)	14
Desipramine (Norpramin)	10
Imipramine (Tofranil)	7
Doxepin (Sinequan)	4
Fluoxetine (Prozac)	6
Trimipramine (Surmontil)	2
Trazodone (Desyrel)	1
Lithium	1
Sertraline (Zoloft)	2

*Benzoylecgonine is not a drug of abuse. It is a metabolite of cocaine and generally present when cocaine is detected. In some cases, benzoylecgonine, but cocaine, was found which indicated that there had been some exposure to cocaine.

ANALGESICS - NARCOTIC

Methadone	9
Methadone Metabolite	10
Propoxyphene (Darvon)	10
Norpropoxyphene	10
Meperidine	3
Hydrocodone	4
Hydromorphone	2
Oxycodone	2

ANALGESICS - NON-NARCOTIC

Acetaminophen	15
Salicylates	4
Pentazocine (Talwin)	1

CARDIAC DRUGS

Lidocaine	77
Metoprolol (Lopressor)	2
Propranolol (Inderal)	1
Digoxin	1
Cardiac glycoside	1

SEDATIVE-HYPNOTICS
Barbiturates

Secobarbital	5
Pentobarbital	2
Phenobarbital	14
Amobarbital	1
Butalbital	1

ANTIHISTAMINES

Diphenhydramine (Benadryl)	35
Chlorpheniramine	1
Doxylamine	1
Promethazine (Phenergan)	1

DECONGESTANTS

Phenylpropanolamine	4

BRONCHODILATORS

Ephedrine	8
Theophylline	1

Drugs Detected, Continued

ANTICONVULSANTS

Diphenylhydantoin (Dilantin)	10
Carbamazepine (Tegretol)	5
Valproic Acid (Depakene)	2

ANTIPSYCHOTIC AGENTS

Chlorpromazine (Thorazine	3
Thioridazine (Mellaril)	1
Trifluoperazine (Stelazine)	1
Haloperidol (Haldol)	1

MISCELLANEOUS

Carbon Monoxide	15
Acetone	3
Quinine	2
Butane	2
Malathion	1
Insulin	1

ANTI-ANXIETY AGENTS

Diazepam (Valium)	28
Nordiazepam	22
Chlordiazepoxide (Librium)	7
Temazepam (Restoril)	4
Alprazolam (Xanax)	3
N-Desalkylflurazepam	2
Lorazepam (Ativan)	2
Clonazepam (Klonopin)	2
Flurazepam (Dalmane)	1
Triazolam (Stelazine)	1

TOXICOLOGY CASES

July 1992 - June 1993

Year/ Months	No. of Cases Referred for Testing Med. Examiner	 Forensic Toxicology*	 Total Cases	Total Tests Performed
1992				
JUL-SEPT	370	1121	1491	8463
OCT-DEC	415	1170	1585	9589
1993				
JAN-MAR	437	1309	1746	10097
APR-JUNE	394	1499	1893	10796
TOTALS	1616	5099	6715	38945

*Cases in which specimens were referred to the Medical Examiner's Toxicology Laboratory for forensic toxicological examination generally were criminal cases in which the presence of drugs was suspected either in the victim or suspect of the crime. Probation, 11550, DUI, management control, out-of-county and other miscellaneous cases are included in this tabulation.

ABUSE DRUGS

The role of abuse drugs in deaths during the 1992-93 fiscal year is presented in this section. The four abuse drugs most commonly seen in Medical Examiner's cases - cocaine, heroin, amphetamines and PCP - will be examined. The number of cases in which these drugs were found either alone or in combination with other abuse drugs are presented in Table XXXII, page 69. In drug caused deaths, cocaine was the most frequently observed drug of abuse where drugs were present alone and heroin was the most frequently observed when drugs were present in combination.

Distribution by Sex (Table XXXIII, page 70)

In deaths caused by abuse drugs (DC = drug caused) or deaths related to abuse drugs (DR = drug related), where the drugs were present either singly or in combination, 64-100% of the deceased individuals were males.

Distribution by Race (Table XXXIII, page 70)

White/Non-Hispanic (W-NH) - In drug-caused deaths where abuse drugs were present singly, the white non-Hispanic racial group predominated in deaths caused by heroin, amphetamines, and PCP. In drug-caused deaths where abuse drugs were present in combination with other abuse drugs, the white non-Hispanic racial group predominated in deaths caused by all four abuse drugs being studied.

Black/Non-Hispanic (B-NH) - In drug-caused deaths and drug-related deaths where abuse drugs were present singly, the black non-Hispanic racial group predominated only in deaths where cocaine was present (55% and 54%, respectively). Black/non-Hispanics were only minimally represented in other categories of drug-caused and drug-related deaths.

White/Hispanic (W-H) - This racial group was most heavily represented in drug-related deaths where cocaine was present either alone or in combination with other drugs.

Distribution by Age (Table XXXIII, page 70)

In deaths where abuse drugs were present singly, the lowest mean age was seen in drug-related deaths with cocaine present alone (32.2 years) while the highest mean age was seen in drug-related deaths with amphetamines present in combination with other drugs (42.0 years).

Alcohol Involvement (Table XXXIII, page 70)

The presence of alcohol in the blood of abuse drugs users was most often associated with deaths caused by heroin alone (57%) and was least associated with deaths due to amphetamines alone (0%).

Deaths Involving Cocaine (Figure 27, p. 71 and Tables XXXIV and XXXV, p. 73)

Cocaine alone was the cause of death in 31 cases by overdose, a 41% increase from the previous fiscal year (22 cases). Cocaine alone was also present in 46 drug-related deaths (See Table XXXIV) including 1 ruled to be accidental, 8 ruled to be by suicide 34 ruled to be by homicide, 1 due to natural causes, and 2 with mode equivocal. Notably, 32 of these 46 deaths (70%) were due to gunshot or stabbing.

Cocaine in combination with other drugs was the cause of death in 61 cases by overdose, a 27% increase from 1991-92! Cocaine in combination was also present in 11 drug-related deaths (See Table XXXV) including 3 cases ruled to be accidental, 3 cases ruled to be by suicide, 3 cases ruled to be by homicide, 1 due to natural causes, and 1 with mode equivocal. Of these 11 deaths, 4 (36%) were due to gunshot or stabbing.

The number of deaths due to cocaine over the last 10 fiscal years is shown in Figure 27. It can be seen that the number of deaths due to cocaine increased in 1992-93 for the second consecutive fiscal year.

Deaths Involving Heroin (Figure 27, page 71 and Table XXXVI, page 76)

Heroin alone was the cause of death in 30 cases by overdose, an 19% decrease from the preceding fiscal year total of 37 cases. Heroin alone also was present in 1 drug-related death. The involvement of heroin alone in drug-related deaths was very low as compared to the involvement of cocaine in this type of death, both in number and manners of death.

Heroin in combination with other drugs was the cause of death in 70 cases by overdose, a 75% increase! from the previous fiscal year total of 40 cases. Heroin in combination was present in 5 drug-related deaths, 2 of which (40%) were due to cutting/stabbing.

The numbers of deaths due to heroin over the last 20 fiscal years are shown in Figure 28, page 75. The number of such deaths for 1992-93 is the third highest seen during the last 20 fiscal years.

Deaths Involving Amphetamines (Table XXXVII, page 77)

Amphetamines alone were the cause of death in 2 cases by overdose, a 60% decrease over the previous fiscal year. Amphetamines alone were also present in 6 drug-related deaths.

Amphetamines in combination with other drugs were the cause of death in 15 cases by overdose, an increase of 67% over the previous fiscal year. Amphetamines in combination with other drugs were present in 4 drug-related deaths.

Abuse Drugs Present in Violent Deaths (See Figure 29, page 78)

Cocaine is the drug of abuse seen most frequently in deaths by homicide, suicide and vehicular deaths.

TABLE XXXII. ABUSE DRUGS

SAN FRANCISCO MEDICAL EXAMINER-CORONER'S CASES

Abuse Drugs Present Alone

Drug	Drug Caused Deaths	Drug Related Deaths	Role Unclear	Incidental Finding
Cocaine alone	31	46	8	4
Heroin alone	30	1	3	2
Amphetamines alone	2	6	5	2
PCP alone	0	0	0	0

Abuse Drugs Present in Combination with Other Drugs

Drug	Drug Caused Deaths	Drug Related Deaths	Role Unclear	Incidental Finding
Cocaine in combination	61	11	5	0
Heroin in combination	70	6	1	0
Amphetamines in combin.	15	4	2	0
PCP in combination	1	0	0	0

TABLE XXXIII. ABUSE DRUGS

INCIDENCE BY SEX, RACE, AGE, AND ALCOHOL INVOLVEMENT

Drugs Present Singly

	SEX		RACE					
Drug	%M	%F	%W-NH	%W-H	%B-NH	Mean Age	% WITH ALCOHOL	AVE. ALC. CONC (g%)
COCAINE-DC*	84	16	19	13	55	40.4	26	0.16
COCAINE-DR**	87	13	17	26	54	32.2	37	0.14
HEROIN -DC*	77	23	77	10	7	41.0	57	0.17
HEROIN-DR**	100	0	100	0	0	37.0	0	-
AMPHET.-DC*	100	0	100	0	0	39.5	0	-
AMPHET.-DR**	83	17	100	0	0	41.0	17	0.21
PCP-DC*				NONE				
PCP-DR**				NONE				

Drugs Present in Combination

	SEX		RACE					
Drug	%M	%F	%W-NH	%W-H	%B-NH	Mean Age	% WITH ALCOHOL	AVE. ALC. CONC (g%)
COCAINE+-DC*	92	8	66	11	20	37.2	31	0.13
COCAINE+-DR**	64	36	45	27	9	36.3	27	0.08
HEROIN+-DC*	90	10	73	9	17	37.0	37	0.12
HEROIN+-DR**	67	33	83	0	17	41.2	33	0.06
AMPHET+-DC*	93	7	80	7	13	37.0	13	0.10
AMPHET+-DR**	75	25	100	0	0	42.0	50	0.04
PCP+-DC*	100	0	0	100	0	23.0	0	-
PCP+-DR**				NONE				

* DC = Drug Caused
** DR = Drug Related

DEATHS DUE TO COCAINE AND HEROIN BY FISCAL YEAR

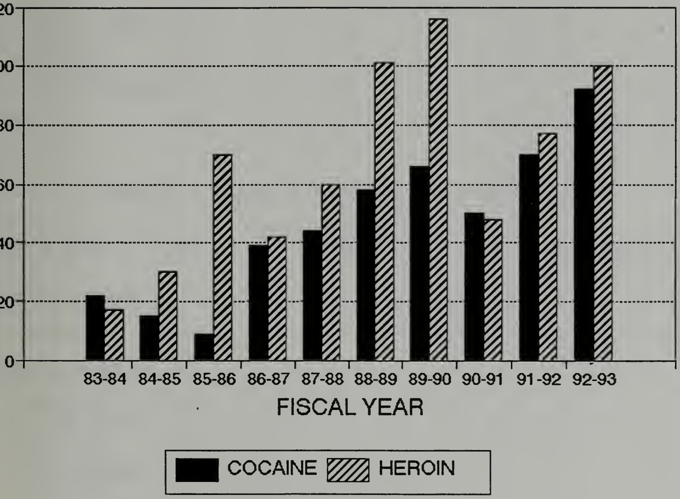


Figure 27.

DEATHS INVOLVING COCAINE

TABLE XXXIV. COCAINE PRESENT ALONE

CAUSE OF DEATH	ACC	SUI	HOM	NC	EQ	UND	TOTALS
	Manner of Death						
Drug Caused Deaths							
OVERDOSE	31	0	0	0	0	0	31
Drug Related Deaths							
JUMP-BRIDGE	0	1	0	0	0	0	1
HANGING	0	5	0	0	0	0	5
GUNSHOT WOUND	0	2	23	0	0	0	25
TRAUMATIC INJ.	0	0	4	0	2	0	6
STABBING	0	0	7	0	0	0	7
VEHICULAR	1	0	0	0	0	0	1
SEIZURE DISORDER	0	0	0	1	0	0	1
TOTALS	32	8	34	1	2	0	77

TABLE XXXV. COCAINE IN COMBINATION WITH OTHER DRUGS

CAUSE OF DEATH	ACC	SUI	HOM	NC	EQ	UND	TOTALS
		Manner of Death					
Drug Caused Deaths							
OVERDOSE	59	1	0	0	1	0	61
Drug Related Deaths							
CHRONIC IV DRUG ABUSE	0	0	0	0	1	0	1
STABBING	0	0	2	0	0	0	2
FALL-BLDG	1	0	0	0	0	0	1
GUNSHOT WOUND	0	2	0	0	0	0	2
VEHICULAR	0	0	1	0	0	0	1
HANGING	0	1	0	0	0	0	1
SEPSIS	1	0	0	0	0	0	1
INTRACEREBRAL HEMORRHAGE	0	0	0	1	0	0	1
CARDIOMYOPATHY	1	0	0	0	0	0	1
TOTALS	62	4	3	1	2	0	72

EATHS DUE TO HEROIN BY FISCAL YEAR
DRUGS ALONE OR IN COMBINATION

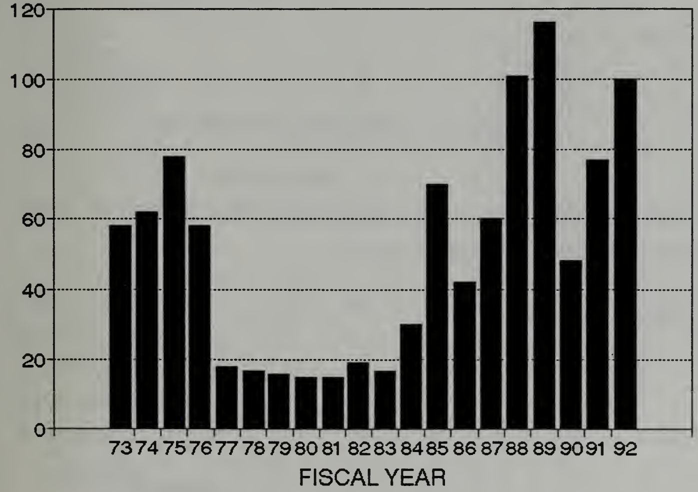


Figure 28.

TABLE XXXVI. DEATHS INVOLVING HEROIN

HEROIN PRESENT ALONE

CAUSE OF DEATH	Manner of Death ACC	SUI	HOM	EQ	UND	TOTALS
Drug Caused Deaths						
OVERDOSE	30	0	0	0	0	30
Drug Related Deaths						
SEPSIS	1	0	0	0	0	1
TOTALS	31	0	0	0	0	31

HEROIN PRESENT IN COMBINATION WITH OTHER DRUGS

CAUSE OF DEATH	Manner of Death ACC	SUI	HOM	NC	EQUIV	UND	TOTALS
Drug Caused Deaths							
OVERDOSE	68	1	0	0	1	0	70
Drug Related Deaths							
CUTTING/STABBING	0	1	1	0	0	0	2
FALL/BLDG	1	0	0	0	0	0	1
SEPSIS	1	0	0	0	0	0	1
CARDIOMYOPATHY	1	0	0	0	0	0	1
TOTALS	71	2	1	0	1	0	75

TABLE XXXVII. DEATHS INVOLVING AMPHETAMINES

AMPHETAMINES PRESENT ALONE

	Manner of Death					
CAUSE OF DEATH	ACC	SUI	HOM	EQ	UNK	TOTAL
Drug Caused Deaths						
OVERDOSE	2	0	0	0	0	2
Drug Related Deaths						
HANGING	0	1	0	0	0	1
STABBING	0	0	1	0	0	1
STRANGULATION	0	0	1	0	0	1
VEHICULAR	1	0	0	0	0	1
FALL-BLDG	2	0	0	0	0	2
TOTALS	5	1	2	0	0	8

AMPHETAMINES PRESENT IN COMBINATION WITH OTHER DRUGS

	Manner of Death					
CAUSE OF DEATH	ACC	SUI	HOM	EQ	UNK	TOTAL
Drug Caused Deaths						
OVERDOSE	15	0	0	0	0	15
Drug Related Deaths						
STABBING	0	0	1	0	0	1
FALL-BLDG	1	0	0	0	0	1
SUFFOCATION	0	1	0	0	0	1
CHRONIC DRUG ABUSE	0	0	0	1	0	1
TOTALS	16	1	1	1	0	19

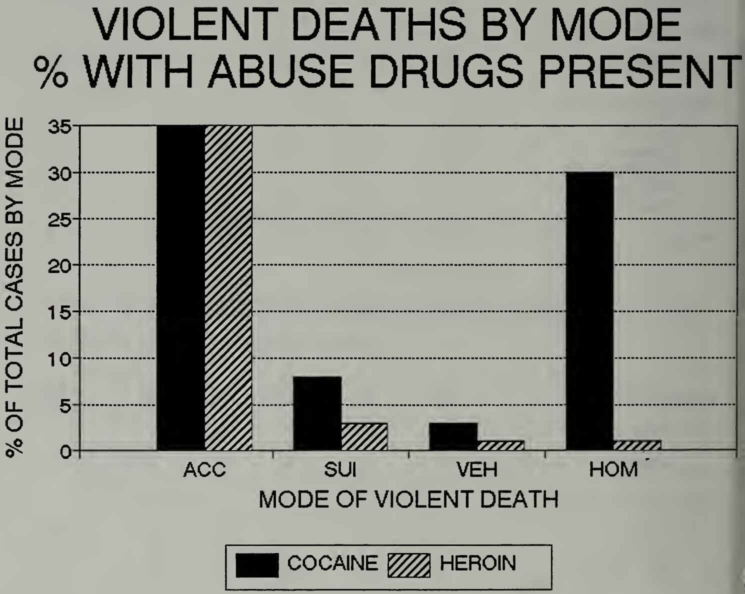

VIOLENT DEATHS BY MODE
% WITH ABUSE DRUGS PRESENT
% OF TOTAL CASES BY MODE
35
30
25
20
15
10
5
0
ACC
SUI
VEH
HOM
MODE OF VIOLENT DEATH
COCAINE
HEROIN

Figure 29.

GLOSSARY

ALKALOID OF MORPHINE GROUP	Typically referred to as morphine-type alkaloid, this is the chemical substance found in body fluids after the injection of heroin or other drugs derived from opium
TOXICOLOGY NOT VALID OR ELIMINATED	This term indicates that the deceased lived long enough after the injury to have eliminated some or all toxic agents from the body
FORENSIC PATHOLOGY	The specialty field of medicine involving the application of medical and pathology principles in determining the cause and manner of sudden, unexpected, and medically unattended deaths. This includes the type and nature of injury, public health hazards, type or nature of homicide weapon, the relation of injury to death and interpreting other factors for the court. These data are prepared and presented to the judicial system or public health interests in keeping with the best available knowledge
MODE OF DEATH	Indicates the manner of death, such as natural, accident, suicide or homicide, and is to be distinguished from cause of death, which is purely a medical determination
MODE EQUIVOCAL	With the cause of death determined, investigative data do not clearly differentiate between two modes of death, although some evidence supports one more likely
MODE UNDETERMINED	With the cause of death determined, investigative data do not clearly support one of two possible modes and either one is possible without prejudice
MODE UNKNOWN	Circumstances insufficient to indicate between possible modes, as when only bones are found, or when no medical cause of death is determined
PATHOLOGY	That branch of medicine which deals with the essential nature of disease, especially in the structural or functional changes in tissues, organs or systems of the body causing disease. It involves the diagnosis of disease by microscopic or chemical analysis
SEROLOGY	That branch of pathology which deals with the analysis of blood and body fluids. Blood types for identification, exclusion of a suspect or judicial purposes are examples of the use in this office

TOXICOLOGY	The scientific study of poisons, their detection, actions and treatment. The relationship of drug levels to emotional or personality change, behavioral or reasoning ability are frequent decisions based on these data
MEDICAL EXAMINER	A physician specifically trained in forensic pathology who is responsible for investigating and determining the cause and manner of sudden or unexpected death
AUTOPSY	A scientific dissection of the human body to determine the cause and nature of death in order to detect public health hazards, determine the method or type of death in homicides and improve the level of medical care in the community. In some cases, showing that no injury or wrongdoing was present is of great emotional and stabilizing value to the family

SEAL OF THE CITY AND COUNTY OF SAN FRANCISCO

ANNUAL REPORT
July 1, 1993 - June 30, 1994

BOYD G. STEPHENS, M.D.
Chief Medical Examiner

850 Bryant Street
San Francisco, California 94103

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MEDICAL EXAMINER'S OFFICE
City and County of
San Francisco, California

ANNUAL REPORT
July 1, 1993 - June 30, 1994

Donna J. Allison, Ph.D.
Statistician and Data Analyst

Boyd G. Stephens, M.D.
Chief Medical Examiner

City and County of San Francisco **Chief Medical Examiner · Coroner**

June 1995

Honorable Frank Jordan, Mayor
Honorable Board of Supervisors
City and County of San Francisco
San Francisco, California 94102

Dear Mayor Jordan and Honorable Supervisors:

The attached annual report covers the fiscal year 1993-94, a period of continued change for the department.

Our principal problems for the reporting year continue to be budget and staff reductions. Staff reductions are approaching one-third, with similar budget reductions. At the same time, the workload for the department has continued to increase, with new duties and responsibilities. Completing our responsibilities has been difficult. The Medical Examiner's Office staff has worked hard, frequently working longer hours, taking work home or assuming additional responsibilities over and above normal job requirements.

Through careful management we have been able to save significant amounts of money in indigent deceased costs. We also have been able to increase our revenues by carefully and fairly applying new charges set forth by the supervisors. We will need a major revision of office and laboratory equipment at some time in the near future.

We are faced with growing pressures from the judicial system, especially since the Simpson case and trial, for an increasing amount of testing for court purposes. The increasing frequency of new prescription drugs and the rapidity of appearance of new street drugs require constant expansion of the toxicology capabilities of the office. Increasing biohazard risks require a much more elaborate, and more expensive level of protection for all staff. These factors increase the department's operating costs and simply cannot be helped.

I'm constantly proud of my staff. They are truly dedicated employees, fulfilling the public trust and meeting their responsibilities, often under difficult circumstances.

5) 553-1694 Hall of Justice, 850 Bryant Street San Francisco, CA 94103

ACCREDITED NATIONAL ASSOCIATION OF MEDICAL EXAMINERS

This report shows a number of important trends that the county needs to take note of and prepare a response through various departments. As an example, the use of and, therefore, the deaths from heroin continue to climb. Comparing the data over the years shows the changes in the county. The death and wastage of our youth is reflected especially in the suicide and homicide data. Many of these deaths are totally preventable.

This department will continue to serve the public and perform our medical and legal responsibilities.

Sincerely,

Boyd G. Stephens, M.D.
Chief Medical Examiner

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INTRODUCTION

The Medical Examiner-Coroner is appointed by law to many responsibilities, the foremost of which is the investigation and certification of a variety of deaths including all deaths of other than natural causation, and any apparently natural deaths in which no physician can reasonably state the cause. The Medical Examiner can utilize any and all medico-legal investigative techniques, including autopsy, to establish both the medical cause of death, and mode or circumstances of death (natural, accident, homicide, suicide or undetermined).

The deaths which must be reported to the Medical Examiner-Coroner, as required by various sections of the Government, Health and Safety and Penal codes, are as follows:

1. Homicide - known or suspected
2. Suicide - known or suspected
3. Following accident or injury (whether the accident or injury is the primary cause or contributory, with death occurring immediately or at some remote time)
4. Medical attendance of less than 20 days
5. No physician in attendance
6. Physician unable to state the cause of death (must be unable, not merely unwilling)
7. Poisoning (food, chemical, drug, therapeutic agents)
8. Occupational or industrial deaths
9. All deaths where a patient has not fully recovered from an anesthetic, whether in surgery, recovery room, or elsewhere
10. All deaths in operating rooms
11. All solitary deaths (unattended by physicians or other person in the period immediately preceding death)
12. All deaths in which the patient is comatose throughout the period of the physician's attendance
13. All deaths of unidentified persons
14. All deaths in which there are grounds to suspect that the death occurred in any degree from a criminal act
15. All deaths involving contagious disease - known or suspected - and constituting a public health hazard
16. Deaths in prison or while under sentence
17. All deaths associated with a rape - known or alleged - or crime against nature
18. All deaths related to or following abortion - known or suspected
19. All deaths involving drowning, fire, hanging, gunshot, stabbing, cutting, starvation, exposure, alcoholism, drug addiction, strangulation or aspiration

Additional mandated responsibilities include protecting and safekeeping of property belonging to deceased individuals, conducting inquests when indicated, maintaining proper public records, making reports to other agencies, identification of deceased persons, interment of indigent dead, and many other death-related activities.

FORENSIC MEDICINE

Forensic medicine generally is considered to be a marriage of medicine and the forensic sciences oriented to medico-legal issues. The field is wide-ranging and growing, becoming even broader in scope than the traditional concept as practiced in Europe.

There has been continued growth and accentuation of the role of forensic medicine in the legal and medico-legal world over the past year. This office has continued its role in forensic medicine for both living and dead, playing a vital role in the community.

We serve in a number of places in the community. Some of these include:

Examination and diagnosis of the living:

- Examination and evaluation of child abuse
- Examination and evaluation of sexual assault injuries
- Examination and evaluation of spousal abuse
- Evaluation of citizens' complaints against the Police Department
- Testimony and interpretation of hospital records and procedures
- Evaluation of force and patterned injuries
- Examination of victims and suspects for trace evidence and injuries
- Collection of blood from suspects and victims for serology, toxicology and other testing
- Court testimony on force, great body injury (GBI) and other issues
- Alcohol and drug interaction in driving under the influence cases and related issues
- Physiologic effects of drug interactions
- Toxicology, including environmental and industrial toxicities
- Teaching - Hospitals, forensic, law enforcement, community
- Analysis for drugs on patients on probation
- Analysis for drugs on management control cases for the County

Examination and evaluation of the dead:

- Scene investigation, reconstruction and analysis
- Evidence collection and testing
- Blood spatter analysis and interpretation
- Patterned evidence analysis and interpretation
- Trace evidence collection
- Time and place of death information
- Forensic autopsy - consultation and interpretation
- Analysis for chemical and limited serology testing
- Forensic toxicology
- Consultation with District Attorney and Public Defender
- Reconstruction Analysis and court presentation
- Teaching - forensic and legal

DEPARTMENT STATUS AND FUTURE

The San Francisco Medical Examiner's Office currently faces some particularly difficult problems. Our overall workload is up - the numbers of deceased individuals as well as toxicology requests on living subjects have increased as have responsibilities regarding compliance with various ordinances. There are significant administrative responsibilities relating to indigent county dead, storage fees, removal fees and other issues. Replacing outdated and outmoded equipment as well as simply improving the office and laboratory capabilities from that typical of the late 1950's is a major goal. Fortunately, we were able to obtain some state funds offsetting a mandated protocol for sudden infant death. This funding source will help us to replace and update our forensic alcohol program - unchanged from the 1970's, thus helping meet one of the frequent legal attacks on the forensic alcohol testing that we perform for the county. Updating the protocol and getting the equipment on line is a major obstacle, but one that must be completed. Upgrading the office computer system and providing data processing capability is another significant goal for the fiscal year.

Upgrading toxicology and pathology procedures is an ongoing process, one constantly necessary as new drugs and methodology are developed. New Legally prescribed drugs as well as new illegal drugs come into use weekly. New test procedures, standards, linearity and, sometimes, equipment are needed to address these changes.

Record handling is an ongoing problem, one that we are more and more in need of addressing as "old" records continue to accumulate. We need to microfilm, or, in some way reduce the volume of paper stored as records. These legal records are used frequently by families and others, so they must be readily available.

The continuous budget reductions have cost approximately one-third of our staff, and about the same reduction in our budget. Budget reductions have led to two court cases against the department, and the staffing reductions and cuts in buying ability have been major administrative problems requiring extra efforts from my staff to supply the materials and supplies needed for the department to function.

The staff is dedicated and hard-working. In each case of reduced staff and budget, they have organized and worked to determine what we can do to continue the same or nearly the same level of service to the public. There have been delays in completing our work, and I expect this to get worse. We have had to reduce or eliminate some of our service to other departments. However, we plan to maintain service to the public at the current level for as long as we can.

DEPARTMENTAL COSTS

1993 - 1994

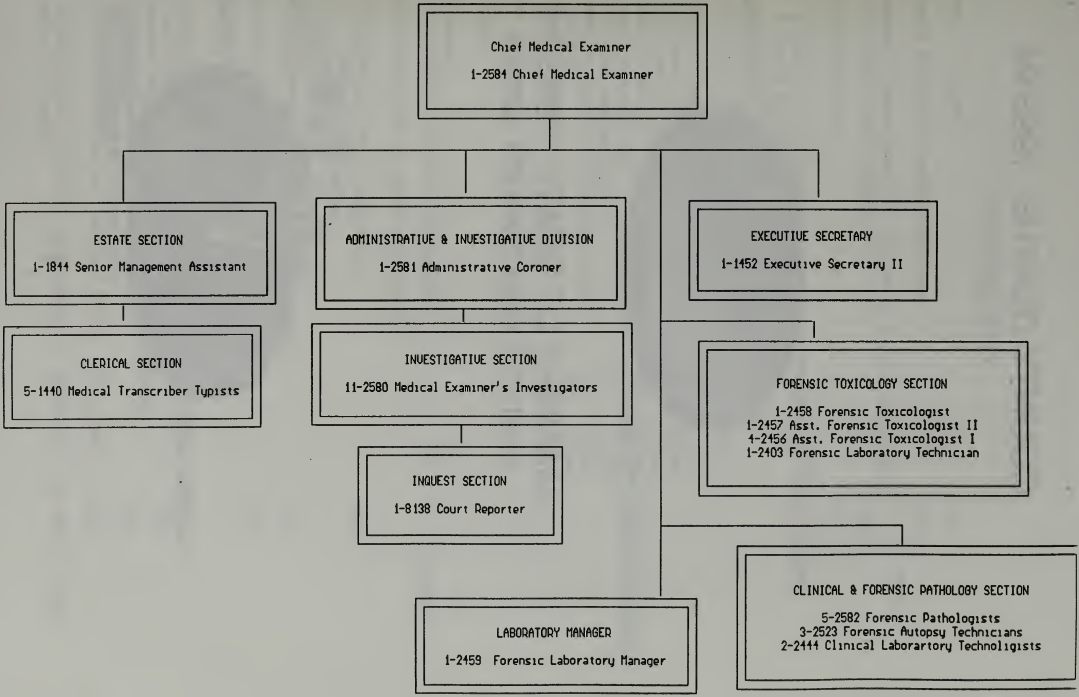
Total Budget	$2,944.562.00*
Transfers to controller, Health and Retirement	$ 376,785.00
NET BUDGET (all other costs)	$2,567,777.00
Total Cases	4,731
Cost per case investigated	$ 543.00
Revenues (sales of records, public auctions, fee-for-service work	$ 199,088.00*
Total Costs *Ad Valorum* Taxes per case investigated	$ 501.00

As indicated elsewhere, this includes all investigative, administrative, scientific and expert witness costs to the County.

* DUI fines money included

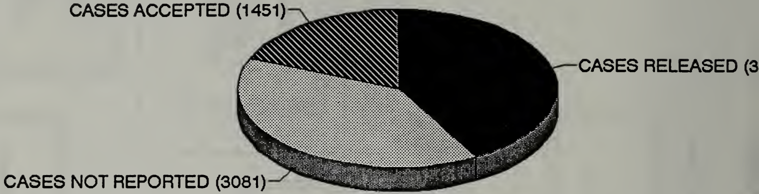
ORGANIZATIONAL CHART

Medical Examiner's Office


Chief Medical Examiner
1-2584 Chief Medical Examiner
ESTATE SECTION
1-1844 Senior Management Assistant
CLERICAL SECTION
5-1440 Medical Transcriber Typists
ADMINISTRATIVE & INVESTIGATIVE DIVISION
1-2581 Administrative Coroner
INVESTIGATIVE SECTION
11-2580 Medical Examiner's Investigators
INQUEST SECTION
1-8138 Court Reporter
LABORATORY MANAGER
1-2459 Forensic Laboratory Manager
EXECUTIVE SECRETARY
1-1452 Executive Secretary II
FORENSIC TOXICOLOGY SECTION
1-2458 Forensic Toxicologist
1-2457 Asst. Forensic Toxicologist II
4-2456 Asst. Forensic Toxicologist I
1-2403 Forensic Laboratory Technician
CLINICAL & FORENSIC PATHOLOGY SECTION
5-2582 Forensic Pathologists
3-2523 Forensic Autopsy Technicians
2-2444 Clinical Laborartory Technoligists

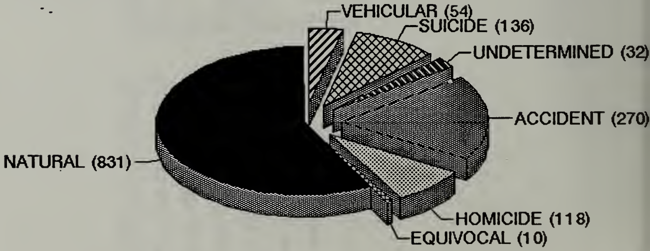
COUNTY DEATHS 1993-94

Figure 1.



MANNER OF DEATH 1993-94
JURISDICTION ON 1451 CASES

Figure 2.



FISCAL YEAR 1993-94

Total Deaths in County	7,812
Total Deaths Reported to Medical Examiner	4,731
Cases Reported, Investigated and Cleared by the Medical Examiner for physician's signature	3,280
Medical Examiner's Cases	1,451

% Reported to Medical Examiner	60.6
% County Deaths Having Medical Examiner's Jurisdiction	18.6

Cases Accepted by the Medical Examiner (by manner of death)*

1.	Natural Deaths (NC)	816	(56.2%)
2.	Accidents (ACC)	270	(18.6%)
3.	Suicides (SUI)	136	(9.4%)
4.	Homicides (HOM)	118	(8.1%)
5.	Mode Equivocal (EQ)	10	(0.7%)
6.	Mode Undetermined (UND)	32	(2.2%)
7.	Sudden Infant Death Syndrome (SIDS)	15	(1.0%)
8.	Vehicular	54	(3.7%)
9.	Private Autopsies	15**	

**Not included in above figures.

Autopsy Index

Full Autopsy	66%
Partial Autopsy or External Examination	34%

Dispositions Authorized by the Medical Examiner

1.	Indigents and fetus dispositions Adults - 259 Infants - 21	280
2.	Cases buried by funeral home with Public Administrator-controlled funds	54

Inquests Held or Depositions Taken	21

Identification

1.	Persons brought to Medical Examiner's Office with insufficient identification	201
2.	Persons subsequently identified by fingerprints, dental X-rays or other means	198
3.	Persons interred as unidentified	3
4.	Fingerprints taken and forwarded to FBI, CII, or SFPD	1,400

* The abbreviations following each manner of death will be used in most tables in this report.

CONSULTATIONS, COURT APPEARANCES, EXAMINATIONS AND REFERRALS
FISCAL YEAR 1993-94

Court appearances are made and consultations are conducted, as required, on cases involving both living and deceased individuals.

Type	Number
Court appearances	111
Consultations	1309

Examinations	
Suspected child abuse	2

Specimens submitted for toxicology testing from living individuals	
Living victims or defendants in violent crimes	83
Management control - other City departments	396
Probation - Juvenile	31
DUI suspects	175

MEDICAL EXAMINER CASES FOR 1993-94

In fiscal year 1993-94, there were 7,812 deaths in San Francisco County. Of these deaths, 4,731 were reported to the San Francisco Medical Examiner's Office. The Medical Examiner's Investigators examined the previous medical history, circumstances surrounding the deaths and, in many cases, the scene of the death, and determined that 1,451 of these deaths came under the jurisdiction of this office. (See Figure 1, page 8). Full or partial autopsies or external examinations were performed on all cases.

1. The highest total number of deaths occurred in January, 1994. The highest number for the various manners of death occurred during other months (e.g., highest numbers of homicides and suicides in July 1993, the highest number of vehicular deaths in April 1994). See Table I and Figure 3, page 12.

2. The racial distribution for each manner of death was quite variable. For example, the value of the ratio of whites/blacks was 3.8 overall, 4.9 for accidents, 7.1 for suicides (as compared to 27.8 for 1989-90 and 13.4 for 1992-93) and 1.1 for homicides. See Table II, page 13 and Figure 5, Page 15.

3. The age range distribution for each manner of death was also variable. For example, the highest number of accidental deaths occurred in the 40-49 year age group, the highest number of homicides occurred in the 20-29 year age group, and the highest number of suicides occurred in the 30-39 year age group. See Table III, page 13.

4. The overall distribution of deaths by sex (ratio of male/female) was 2.3, but this varied by manner of death from 1.9 in deaths due to natural causes to 4.2 in suicide deaths. See Table IV and Figure 4, page 14.

MEDICAL EXAMINER CASES FOR 1993-94

TABLE I. MANNER OF DEATH - MONTHLY COMPARISON

Month of Death	Manner of Death								
	ACC	HOM	SUI	NC	VEH*	SIDS#	EQ	UND	TOTALS
July	22	16	16	65	3	1	1	1	125
August	27	8	9	55	5	0	1	2	107
September	18	9	11	70	2	0	1	0	111
October	18	9	8	53	2	1	3	0	94
November	22	12	13	67	5	0	1	3	123
December	24	13	3	77	4	2	2	1	126
January	34	12	10	90	3	2	1	6	158
February	19	7	11	67	6	3	0	3	116
March	22	9	15	63	5	2	0	4	120
April	17	10	15	58	12	0	0	3	115
May	23	9	15	85	3	1	0	4	140
June	24	4	10	66	4	3	0	5	116
TOTALS	270	118	136	816	54	15	10	32	1451

*VEH = Vehicular deaths. These include 11 deaths ruled to be homicide, and 43 cases ruled to be accidental.

# SIDS = Sudden Infant Death Syndrome

Fig. 3.

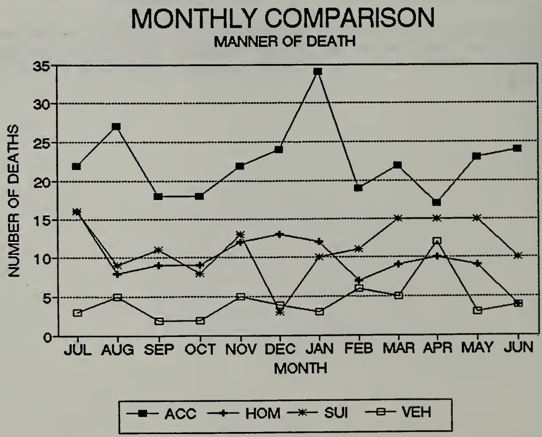


TABLE II. MANNER OF DEATH BY RACE

Manner of Death

Race	ACC	HOM	SUI	NC	VEH*	SIDS#	EQ	UND	TOTALS
White	214	51	99	594	31	4	8	21	1022
Black	44	48	14	135	13	6	2	9	271
Asian	9	18	19	76	10	5	0	2	139
Other	3	1	4	11	0	0	0	0	19
TOTALS	270	118	136	816	54	15	10	32	1451

TABLE III. MANNER OF DEATH BY AGE

Manner of Death

Age Group	ACC	HOM	SUI	NC	VEH*	EQ	UND	TOTALS
0-11 months	2	0	0	19#	0	0	0	21
1-5 years	6	1	0	1	1	0	0	9
6-12 years	1	1	0	3	1	0	0	6
13-16 years	0	3	1	1	1	0	0	6
17-19 years	3	6	4	1	1	0	0	15
20-29 years	24	53	30	8	19	0	4	138
30-39 years	75	26	31	54	7	3	8	204
40-49 years	82	12	20	104	4	2	12	236
50-59 years	26	8	23	115	5	1	4	182
60-69 years	13	4	12	171	5	1	1	207
70-79 years	15	3	7	171	4	2	1	203
80-89 years	15	1	7	137	5	0	0	165
90+ years	8	0	1	46	1	1	1	58
Unknown	0	0	0	0	0	0	1	1
TOTALS	270	118	136	831	54	10	32	1451

# Includes 15 SIDS (Sudden Infant Death Syndrome) deaths

* VEH = Vehicular deaths. These include 11 deaths ruled to be homicide, and 43 cases ruled to be accidental.

TABLE IV. MANNER OF DEATH BY SEX

	Manner of Death								
Sex	ACC	HOM	SUI	NC	VEH*	SIDS#	EQ	UND	TOTALS
M	204	93	110	532	38	8	8	21	1014
F	66	25	26	284	16	7	2	11	437
Unknown	0	0	0	0	0	0	0	0	0
TOTALS	270	118	136	816	54	15	10	32	1451

* = Vehicular deaths. These include 11 cases ruled to be homicide, and 43 ruled to be accidental.

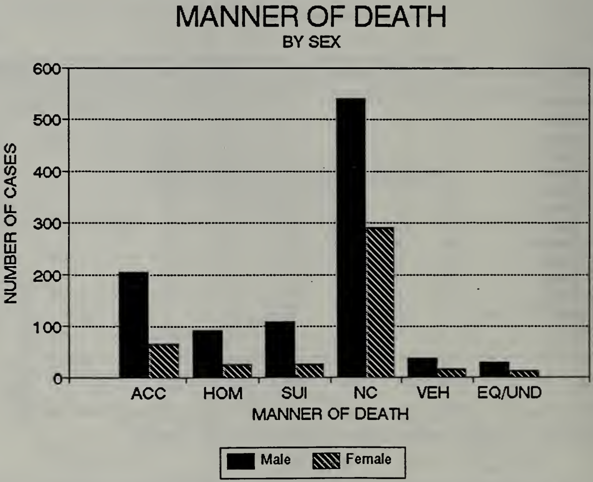


Figure 4.

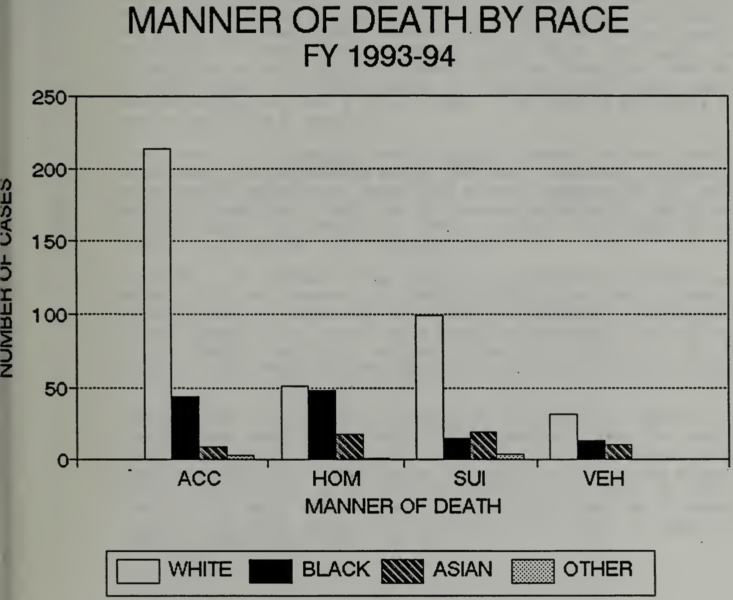

MANNER OF DEATH BY RACE
FY 1993-94
NUMBER OF CASES
250
200
150
100
50
0
ACC
HOM
SUI
VEH
MANNER OF DEATH
WHITE
BLACK
ASIAN
OTHER

Figure 5.

YEARLY COMPARISON OF MEDICAL EXAMINER'S CASES

Comparisons of manners of death as well as methods used over the last eight fiscal years are presented in this section. The most significant differences which have occurred over the last eight years which can be observed in these tabulations include:

1. Regarding manners of death, the number of homicides (118) during fiscal year 1993-94 was a slight decrease (7%) from the 127 homicides recorded in 1992-93. The number of accidental deaths decreased by 6% from 1992-93, but is still the third highest number of accidental deaths during the last 8 fiscal years. The number of cases ruled to be suicide (136) was an increase of only 2% from fiscal year 1992-93 and the third lowest number observed during the last 8 fiscal years. The number of deaths due to natural causes which came under the jurisdiction of this office decreased 12% from fiscal year 1992-93. The total number of vehicular deaths (54) was the second lowest number observed during the last 8 fiscal years. (See Table V and Figure 6, page 18 and Figure 2, page 8).

2. With respect to the methods used in homicide deaths, the most notable differences from the previous fiscal year are a continuing increase in deaths caused by firearms, from 75 to 83 and a decrease in all other methods of homicides. Deaths due to firearms accounted for 70% of all homicide deaths, as compared to 53% in 1992-93. (See Table VI and Figure 7, page 19, and Figure 24, page 58).

3. There was a 2% increase in the number of suicides during fiscal year 1992-93 (136) as compared to 1993-94 (133). There was a notable increase (38%) in deaths due to firearms as compared to fiscal year 1992-93 (from 32 to 44 cases) and a continuing downward trend (19%) in suicide deaths from drug overdoses (from 31 in 1992-93 to 25 in 1993-94). (See Table VII and Figure 8, page 20, and Figure 24, page 58).

4. Regarding deaths ruled to be accidental, those which resulted from drug overdoses were at the highest level observed during the last 8 fiscal years (158). Deaths due to falls were at their lowest level seen during the last 8 fiscal years, decreasing from a high of 80 such deaths in 1986-87 to 48 in 1993-94. However, the number of deaths from falls is still second only to deaths from drugs as a leading cause of accidental deaths (See Table VIII and Figure 9, page 21, Figure 10, page 22 and Figure 24, page 58).

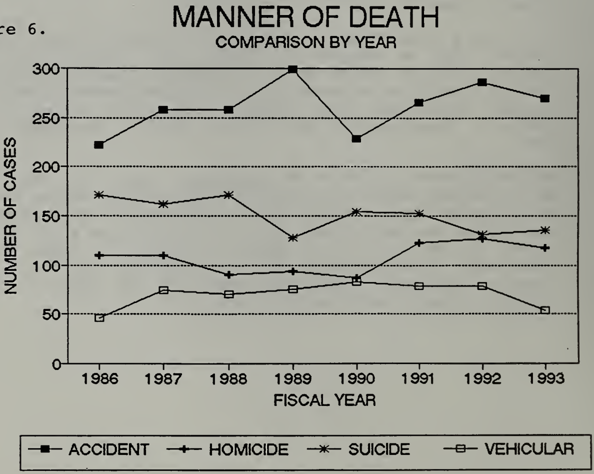
YEARLY COMPARISONS OF MEDICAL EXAMINER-CORONER'S CASES

TABLE V. YEARLY COMPARISON OF MANNER OF DEATH

Manner of Death	Fiscal year '86-'87	'87-'88	'88-'89	'89-'90	'90-'91	'91-'92	'92-'93	'93-'94
Accident	222	258	258	298	229	266	286	270
Homicide	110	110	91	94	88	123	127	118
Suicide	171	162	171	128	154	153	132	136
Natural	1040	1074	1010	903	911	885	930	816
Vehicular*	46	75	71	76	83	79	79	54
Equiv/Undet	62	82	85	76	72	53	58	42
TOTALS	1651	1761	1686	1575	1537	1557	1612	1451

* Vehicular deaths include 11 cases ruled to be homicide and 43 cases ruled to be accidental.

Figure 6.



MANNER OF DEATH
COMPARISON BY YEAR

TABLE VI. YEARLY COMPARISON OF HOMICIDE METHODS USED

Method Used	Fiscal year '86-'87	 '87-'88	 '88-'89	 '89-'90	 '90-'91	 '91-'92	 '92-'93	 '93-'94
Firearms	41	48	41	61	50	70	75	83
Stabbing	32	35	21	17	17	20	24	18
Traum. Inj.	21	23	22	10	14	22	16	12
Vehicular	7	13	16	10	16	15	14	11
Asphyx/strang	8	3	5	3	5	7	4	1
Other	1	1	2	3	2	4	8	4
TOTALS	110	123	107	104	104	138	141	129

HOMICIDES
COMPARISON BY YEAR

Figure 7.

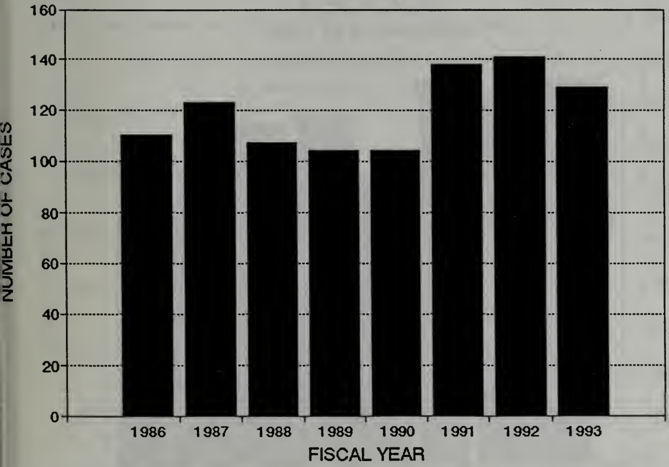


TABLE VII. YEARLY COMPARISON OF SUICIDE METHODS USED

Method Used	'86-'87	'87-'88	'88-'89	'89-'90	'90-'91	'91-'92	'92-'93	'93-'94
	Fiscal year							
Poisoning	32	32	44	31	37	44	31	25
Firearms	45	42	44	35	40	37	32	44
Hanging	29	28	17	23	25	23	22	22
Jump/Building	19	19	30	7	13	20	8	12
Suff/strangul	3	7	7	6	6	9	14	9
CO Poisoning	6	2	2	9	5	6	5	3
Jump/GG Brdg	19	18	15	10	13	4*	1	3
Jump/Bay Brdg	1	1	2	2	0	2	1	5
Jump/Other	-	-	-	-	-	2	3	3
Cut/stab	9	8	5	3	7	2	9	8
Drowning	6	3	2	0	1	2	3	1
Vehic. BART	-	-	-	-	-	2	2	0
Burning	0	0	2	0	2	0	0	1
Other	2	2	1	2	7	0	2	0
TOTALS	171	162	171	128	156	153	133	136

Figure 8.

SUICIDES
COMPARISON BY YEAR

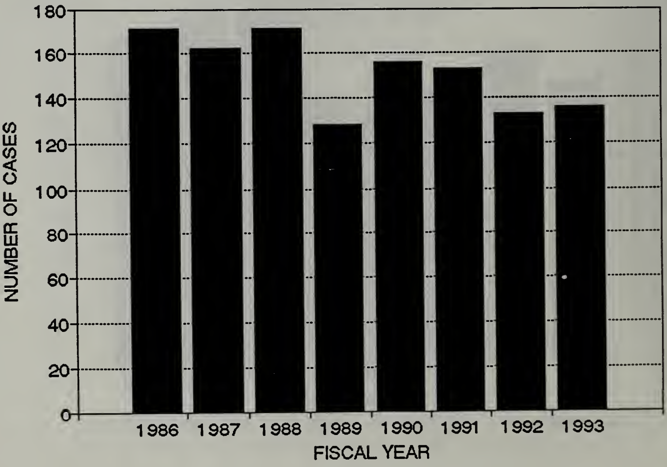


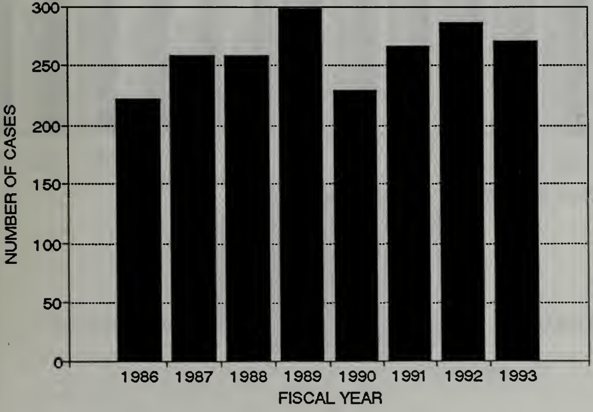
TABLE VIII. YEARLY COMPARISON OF ACCIDENTAL* DEATH SITUATIONS

Situation	Fiscal year '86-'87	'87-'88	'88-'89	'89-'90	'90-'91	'91-'92	'92-'93	'93-'94
Drugs/Poisons	92	100	144	157	97	123	156	158
Falls	80	76	54	53	55	61	58	48
Med. Misadv.	12	13	6	7	12	18	8	5
Smoke/CO inhal	9	8	11	4	8	14	6	2
Drug/Alcohol Abuse Rel.	-	13	9	3	6	13	18	9
Aspiration	8	10	5	13	10	12	6	12
Burns	6	12	3	15	10	4	4	8
Drowning	5	14	11	10	12	4	5	11
Asphyxia	4	2	8	8	3	3	5	5
Firearms	1	1	3	0	2	2	1	2
Drug Reactions	-	-	-	-	4	2	0	1
Head Trauma	-	-	-	11	3	1	6	1
Hanging	-	2	2	0	2	0	1	1
Other	3	7	2	5	5	9	9	7
TOTALS	222	258	258	298	229	266	286	270

* Vehicular deaths are not included in this tabulation.

ACCIDENTS
COMPARISON BY YEAR

Figure 9.



YEARLY COMPARISON OF ACCIDENTAL DEATH DUE TO DRUGS AND FALLS

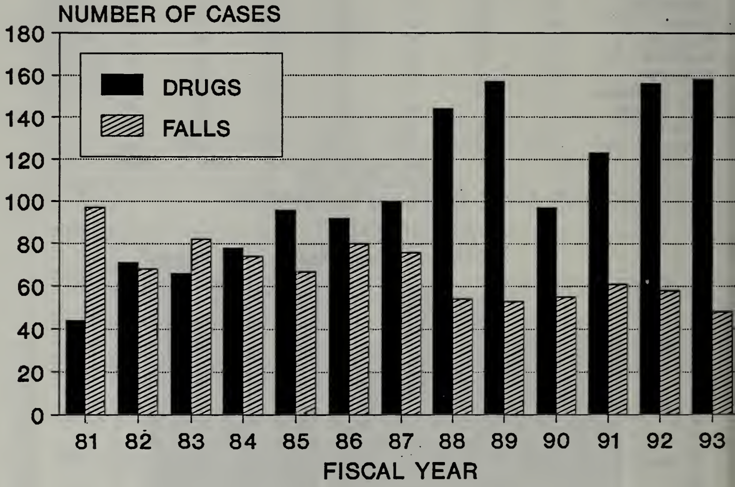


Figure 10.

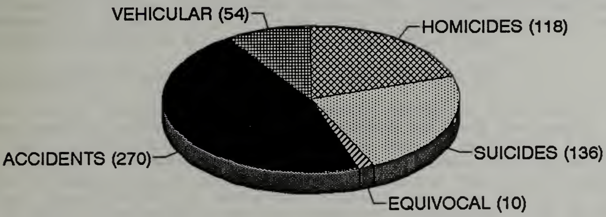
TABLE IX. VIOLENT DEATHS

Of the 1,451 deaths investigated by the Medical Examiner's Office during 1993-94, 588 were determined to be the result of violence.

Mode	Total No.	% of Medical Examiner Cases	% of County Deaths
ACCIDENT	313	21.6	4.0
Vehicular	43	3.0	
Non-vehicular	270	18.6	
SUICIDE	136	9.4	1.7
Vehicular	0	0.0	
Non-vehicular	136	9.4	
HOMICIDE	129	8.8	1.7
Vehicular	11	0.8	
Non-vehicular	118	8.1	
EQUIVOCAL	10	0.7	0.1
Vehicular	0	0.0	
Non-vehicular	10	0.7	

VIOLENT DEATHS IN 1993-94
TOTAL=588

Figure 11.



ACCIDENTAL DEATHS

Three hundred and thirteen deaths were ruled to have been due to accidental means during the 1993-94 fiscal year. Of these, 270 were non-vehicular accidental deaths. The number of individuals dying by each manner of accidental death are indicated in Figure 12, page 27 and Table X, page 28, and the percentages of all accidental deaths represented by each manner are indicated on Table X, page 28.

Of the accidental death victims tested for alcohol and drugs (i.e. those in the hospital for less than 24 hours), many had significant levels of alcohol in their blood; many had abuse drugs present (See Table X, page 28).

Abuse Drug Involvement (Table XI, page 29)

Overall, the number of accidental death cases in which abuse drugs were present (235) was only a 6% increase from fiscal year 1992-93. This is in contrast to the dramatic increases seen previously - from 110 cases in fiscal year 1990-91 to 163 cases in fiscal year 1991-92 (a 48% increase!) to 222 cases in fiscal year 1992-93 (a further 36% increase from the preceding fiscal year). Of the deaths caused by drugs, heroin (measured as morphine) was seen most frequently (110 cases), an increase of 12% from last fiscal year's 98 cases. The second most frequently seen abuse drug in deaths due to drugs was cocaine (84 cases), a slight decrease of 6% from last fiscal year's 89 cases. The number of cases with cocaine present decreased slightly also, by 7%, from the previous fiscal year (99 to 92). The number of cases with heroin present increased by 11% (from 101 to 111 cases). Deaths with amphetamines present increased by 45% during this same time period (from 22 to 32 cases). This follows a 47% increase in cases with amphetamines present between 1991-92 (15 cases) to 1992-93 (22 cases). Abuse drugs may have played a role in accidental deaths by falls (2 cases) and smoke inhalation (2 cases).

Racial Distribution (Figure 13, page 30 and Table XII, page 31)

Overall, accidental deaths occurred most frequently in whites. Deaths by firearms occurred less frequently in whites (0%) than would be anticipated by the overall involvement of whites in accidental deaths (79%). Asians are more heavily represented (17%) in deaths by aspiration than would be expected by the involvement of Asians in accidental deaths (3%). Blacks are less heavily represented in deaths by falls (8%) than would be expected based on the general involvement of blacks in all types of accidental deaths (16%).

Age Distribution (Figure 14, page 32 and Table XIII, page 33)

Deaths due to asphyxia, aspiration, drowning, burns, or falls are the most common causes of accidental deaths in the youngest age group (0-5 years). There was only 1 non-vehicular accidental death in the age group from 6-19 years during 1993-94 - the result of a firearm. The most common causes of accidental deaths in people over 60 years of age are aspiration (75% of all aspiration deaths), burns (50% of all deaths due to burns), and falls (56% of all deaths due to falls). Deaths due to drug overdoses are concentrated in the 20-49 year age group with 43% of all deaths due to drug overdoses occurring in the 40-49 year age group.

Distribution by Sex (Table XIV, page 34)

Males are 3.1 times as likely as females to be the victims of non-vehicular accidental deaths. This difference is less pronounced in deaths due to falls or drowning. In males, there was a 5% decrease in deaths from drug overdoses as compared to the previous fiscal year; in females, drug overdose deaths increased by 38%.

NON-VEHICULAR ACCIDENTS

This category includes all unintentional fatalities. There were 270 accidental deaths (non-vehicular) which accounted for 18.6% of the Medical Examiner death investigations for the fiscal year of 1993-94.

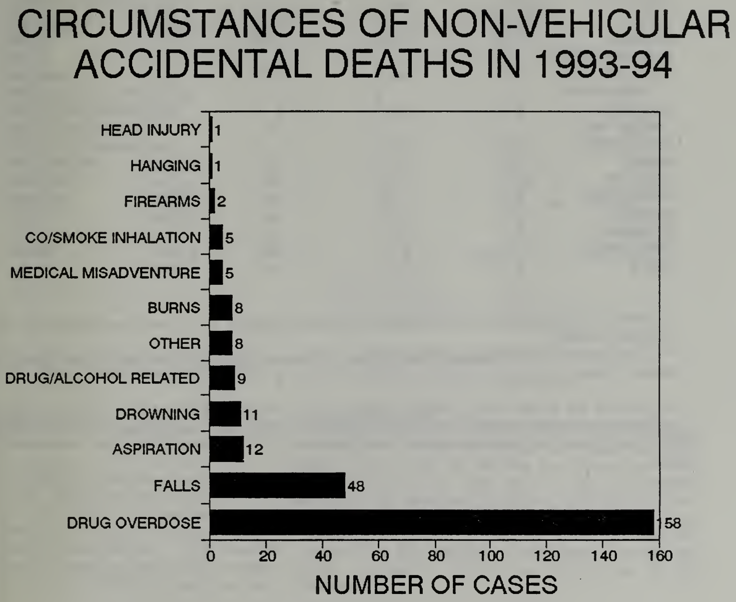


Figure 12.

TABLE X. ACCIDENTAL DEATHS BY MODE

Drug and Alcohol Involvement

METHOD	NUMBER	% OF TOTAL ACCIDENTS	% ALC.*	AVE. ALC. CONC (g%)	% DRUGS**
DRUG O.D.	158	58.5	43	0.14%	--
FALLS	48	17.8	27	0.17%	15
MEDICAL MISADVENTURE	5	1.9	0	-	0
SMOKE/CO INHALATION	2	0.7	0	-	50
DRUG/ALC ABUSE REL.	9	3.3	0	-	44
ASPIRATION	12	4.4	0	-	0
BURNS	8	3.0	40	0.22%	0
DROWNING	11	4.1	12	0.27%	0
ASPHYX/SUFF	5	1.9	40	0.22%	25
HANGING	1	0.3	100	0.10%	0
FIREARMS	2	0.7	0	-	0
HEAD TRAUMA	1	0.3	100	0.08%	0
OTHER	8	3.0	43	0.09%	50

* Refers to percentage of victims (of those tested) with positive blood ethyl alcohol levels.
** Refers to percentage of victims (of those tested) with positive tests for abuse drugs.

It should be noted that, when present, the average blood ethyl alcohol concentrations for most modes are substantially higher than the level of 0.08% which is considered to be intoxicated when driving.

TABLE XI. ABUSE DRUGS PRESENT IN NON-VEHICULAR ACCIDENTS

	DRUGS			
Situation	Cocaine	PCP	Morphine	Amphetamines
ASPHYXIA/SUFFOCATION	0	0	0	1
ASPIRATION	0	0	0	0
BURNS	0	0	0	0
FALLS	2	0	0	0
DROWNING	0	0	0	0
DRUG/ALCOHOL ABUSE REL.	3	0	1	1
MEDICAL MISADVENTURE	0	0	0	0
DRUG OVERDOSE	84	0	110	29
SMOKE/CO INHALATION	1	0	0	1
HEAD TRAUMA	0	0	0	0
FIREARMS	0	0	0	0
HANGING	0	0	0	0
OTHER	2	0	0	0
TOTALS	92	0	111	32

* Drugs may have been present singly or in combination
** Drugs used therapeutically are not included in this tabulation

Overall, the number of accidental death cases where abuse drugs were present increased only 6% from 1992-93 as compared to the previous increase of 36%, from 163 in 1991-92 to 222 in 1992-93. The number of deaths due to an overdose of cocaine (cocaine present alone or in combination with other drugs) decreased from 89 to 84 as compared to a previous 48% increase from 60 in 1991-92 to 89 in 1992-93. The number of deaths due to an overdose of heroin (measured as morphine), have increased from 47 in 1990-91 to 76 in 1991-92 to 98 in 1992-93 to 111 in 1993-94. PCP was not present in any deaths. Accidental deaths in which amphetamines were present have increased from 8 in 1990-91 to 15 in 1991-92 to 22 in 1992-93 to 32 in 1993-94.

RACE OF NON-VEHICULAR ACCIDENT VICTIMS 1993-94

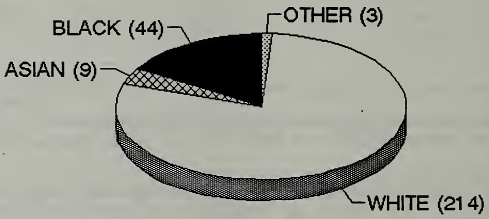


Figure 13.

TABLE XII. ACCIDENTAL DEATH SITUATIONS BY RACE

	Race				
	White	Black	Asian	Other	Total
Method					
Asphyxia/Suff	4 (80%)*	0	1 (20%)	0	5
Aspiration	10 (83%)	0	2 (17%)	0	12
Burns	8 (100%)	0	0	0	8
Drowning	10 (91%)	0	1 (9%)	0	11
Drug/Alcohol Abuse Rel	5 (56%)	4 (44%)	0	0	9
Drug O.D.	125 (79%)	31 (20%)	0	2 (1%)	158
Hanging	1 (100%)	0	0	0	1
Falls	39 (81%)	4 (8%)	4 (8%)	1 (2%)	48
Firearms	0	2 (100%)	0	0	2
Head Trauma	0	1 (100%)	0	0	1
Medical Misadventure	3 (60%)	2 (40%)	0	0	5
Smoke/CO Inhalation	2 (100%)	0	0	0	2
Other	7 (88%)	0	1 (12%)	0	8
Totals	214 (79%)	44 (16%)	9 (3%)	3 (1%)	270

* Row percentages refer to percentages by race for each mode. These can be compared to total percentages for each race to see whether a mode is more or less prevalent in a racial group. For instance, deaths from drowning appear to occur more frequently in whites (91%) than the general involvement of whites in accidents (79%). Deaths from falls occur less frequently in blacks (8%) than would be anticipated, based on the overall involvement of blacks in accidental deaths (16%). Deaths due to aspiration appear to occur more frequently in Asians (17%) than would be anticipated, based on the involvement of Asians in accidental deaths (3%).

AGE OF ACCIDENTAL DEATH VICTIMS
FY 1993-94

Figure 14.

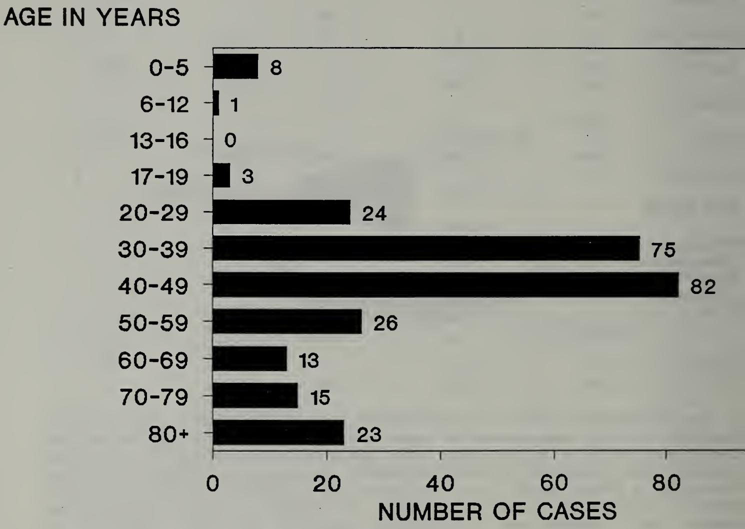


TABLE XIII. ACCIDENTAL DEATH SITUATIONS BY AGE

Age Range

Method	0-5	6-12	13-16	17-19	20-29	30-39	40-49	50-59	60-69	70-79	80+	Ave. Age
Asphyxia	1 (20%)	0	0	0	1 (20%)	1 (20%)	0	2 (40%)	0	0	0	33.7
Aspiration	1 (8%)	0	0	0	0	0	1 (8%)	1 (8%)	1 (8%)	2 (17%)	6 (50%)	68.3
Burns	1 (12%)	0	0	1 (12%)	0	0	1 (12%)	1 (12%)	1 (12%)	2 (25%)	1 (12%)	52.3
Drowning	2 (18%)	0	0	0	1 (9%)	4 (36%)	1 (9%)	1 (9%)	1 (9%)	0	1 (9%)	38.0
Drug/Alc Abuse Rel	0	0	0	0	0	6 (67%)	2 (22%)	1 (11%)	0	0	0	37.9
Drug O.D.	1 (1%)	0	0	1 (1%)	16 (10%)	56 (35%)	68 (44%)	11 (7%)	3 (2%)	2 (1%)	0	39.4
Hanging	0	0	0	0	0	0	1 (100%)	0	0	0	0	43.0
Falls	1 (2%)	0	0	0	3 (6%)	5 (10%)	4 (8%)	8 (17%)	4 (8%)	8 (17%)	15 (31%)	62.8
Firearms	0	1 (50%)	0	1 (50%)	0	0	0	0	0	0	0	15.0
Head Trauma	0	0	0	0	0	0	1 (100%)	0	0	0	0	42.0
Medical Misad.	1 (20%)	0	0	0	0	0	1 (20%)	1 (20%)	2 (40%)	0	0	46.4
Smoke/CO Inhal.	0	0	0	0	2 (100%)	0	0	0	0	0	0	23.0
Other	0	0	0	0	1 (12%)	3 (38%)	2 (25%)	0	1 (12%)	1 (12%)	0	
TOTALS	8	1	0	3	24	75	82	26	13	15	23	
% OF TOTAL	3%	0.4%	0	1%	9%	28%	30%	10%	5%	6%	9%	

* Row percents refer to percentage by age range for each mode. These can be compared to total percentages for each age range to see if a mode is more or less prevalent in an age group. For example, asphyxia occurred more frequently in the 0-5 years of age group (20%) than the general involvement of this age group in accidents (3%) while falls in the 30-39 year age group occurred less frequently (10%) than all accidents in this age group (28%). Falls and burns in the age group 60-80+ occurred more frequently (56% and 61% respectively) than all accidents in this age group (20%).

TABLE XIV. ACCIDENTAL DEATH SITUATIONS BY SEX

	Sex	
	Male	Female
Method		
Asphyxia	4 (80%)*	1 (20%)
Aspiration	8 (67%)	4 (33%)
Burns	6 (75%)	2 (25%)
Drowning	7 (64%)	4 (36%)
Drug/Alcohol Abuse Related	7 (78%)	2 (22%)
Drug O.D.	125 (79%)	33 (21%)
Hanging	1(100%)	0 (0%)
Falls	33 (69%)	15 (31%)
Firearms	2(100%)	0 (0%)
Head Trauma	1(100%)	0 (0%)
Medical Misadven.	2 (40%)	3 (60%)
Smoke/CO Inhal.	2(100%)	0 (0%)
Other	6 (75%)	2 (25%)
TOTALS	2104	66
% OF TOTAL	76%	24%

* Row percents refer to percentages by sex for each mode. These can be compared to total percentages for each sex to see whether a mode is more or less prevalent in one sex. For example, asphyxial deaths appear to occur slightly more frequently in males (80%) than the general involvement of males in accidents (76%), while deaths from drowning occur more frequently in females (36%) than all accidents in females (24%).

VEHICULAR DEATHS

In 1993-94, there were 54 vehicular fatalities in San Francisco. The number of such fatalities by type are indicated in Figure 15, page 36 and Table XV, page 37. Percentages of all vehicular fatalities by type are shown in Table XV, page 37. The largest number of vehicular fatalities involved pedestrians; the second largest number involved automobile drivers. However, automobile driver fatalities have decreased from 21 in 1990-91 to the current low of 9 in 1993-94. Automobile passenger fatalities have decreased by 50% from 1990-91 (16) to 1993-94 (8). Motorcycle driver fatalities decreased from 13 in 1992-93 to 6 in 1993-94, a 54% decrease! It should be noted that all 6 motorcycle drivers who died in vehicular accidents were wearing helmets at the time of the accident. Pedestrian fatalities decreased by 26% from 1992-93 (39) to 1993-94 (29).

Of the vehicular fatalities tested for alcohol (i.e. those in the hospital for less than 24 hours), truck drivers had the highest average blood ethyl alcohol concentration (0.23%). Truck drivers were also the vehicular fatalities with the highest percentage of both alcohol and drugs present (100%).

Abuse Drug Involvement (Table XVI, page 37)

Cocaine was the abuse drug seen most frequently in vehicular fatalities (4 cases) as compared to 9 cases in 1991-92 and 2 cases in 1992-93. The number of vehicular fatalities with abuse drugs present was 5 during 1993-94, a decrease of 50% from 10 cases seen in 1991-92.

Age Distribution (Table XVII, p. 38, Table XVIII, p. 39, and Figure 16, p. 38)

The average age of motorcycle drivers was 24 years as compared to the average age of auto drivers (38 years) who were vehicular fatalities during 1993-94. The mean age of pedestrians (53) was the highest seen for any type of traffic fatality with the 50+ year age group being overrepresented in the pedestrian fatalities (56%) as compared to the overall involvement of this age group in all types of traffic fatalities (36%).

Distribution by Sex (Table XVIII, page 39)

Males were the predominant victims in all types of vehicular fatalities (70%).

Racial Distribution (Table XVIII and Figure 17, page 39)

Overall, vehicular fatalities occur more frequently in whites (58%). Asians were represented more heavily among deaths of automobile passengers (38%) than would be expected by their involvement in all vehicular fatalities (19%). Blacks were most heavily represented among pedestrian fatalities (34%) during 1993-94. The percentage of white auto driver fatalities had increased from 29% of the total in 1989-90 to 57% of the total in 1990-91, to 70% of the total in 1991-92! This decreased dramatically to 27% of the total in 1992-93 but increased once again to 67% of the total in 1993-94.

VEHICULAR DEATHS

In San Francisco, there were 54 vehicle-related fatalities (43 accidents and 11 homicides) accounting for 4% of the Medical Examiner death investigations for the fiscal year 1993-94.

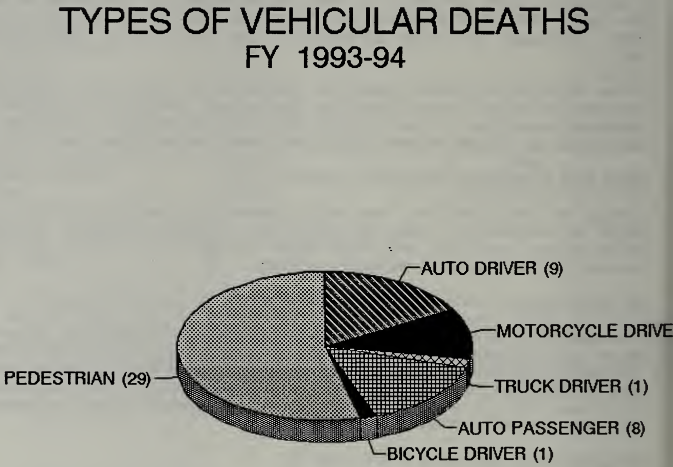


Figure 15.

TABLE XV. VEHICULAR FATALITIES IN 1993-1994

Drug and Alcohol Involvement

METHOD	NO.	% WITH ALCOHOL*	AVE. ALC. CONC. (g%)	% WITH DRUGS*	% WITH DRUGS+ALC
PEDESTRIAN	29 (54%)	33	0.12	18	0
AUTO DRIVER	9 (17%)	33	0.16	0	0
AUTO PASSENGER	8 (15%)	40	0.18	25	25
MOTORCYCLE DRIVER	6 (11%)	17	0.10	0	0
BICYCLE DRIVER	1 (2%)	0	-	0	0
TRUCK DRIVER	1 (2%)	100	0.23	100	100

* Refers to percentages of victims (of those tested) with positive blood ethyl alcohol levels.

** Refers to percentage of victims (of those tested) with positive blood tests for abuse drugs.

TABLE XVI. ABUSE DRUGS PRESENT IN VEHICULAR FATALITIES

	Drugs			
Situation	Cocaine	PCP	Heroin	Amphetamines
PEDESTRIAN	3	0	0	0
AUTO DRIVER	0	0	0	0
AUTO PASSENGER	1	0	0	0
MOTORCYCLE DRIVER	0	0	0	0
BICYCLE DRIVER	0	0	0	0
TRUCK DRIVER	0	0	0	1
TOTALS	4	0	0	1

TABLE XVII. VEHICULAR FATALITIES BY AGE

Situation	Age 0-5	6-12	13-16	17-19	20-29	30-39	40-49	50-59	60-69	70-79	80+
AUTO DRIVER	0	0	0	0	4 (44%)	2 (22%)	1 (11%)	1 (11%)	1 (11%)	0	0
AUTO PASSENGER	1 (12%)	0	1 (12%)	0	3 (38%)	0	1 (12%)	2 (25%)	0	0	0
MOTORCYCLE DRIVER	0	0	0	0	6 (100%)	0	0	0	0	0	0
PEDESTRIAN	0	1 (3%)	0	1 (3%)	5 (17%)	4 (14%)	2 (7%)	2 (7%)	4 (14%)	4 (14%)	6 (21%)
BICYCLE DRIVER	0	0	0	0	0	1 (100%)	0	0	0	0	0
TRUCK DRIVER	0	0	0	0	1 (100%)	0	0	0	0	0	0
TOTALS	1	1	1	1	19	7	4	5	5	4	6
% of total	(2%)	(2%)	(2%)	(2%)	(35%)	(13%)	(7%)	(9%)	(9%)	(7%)	(11%)

* Row percents refer to percentages by age group for each situation. These can be compared to total percentages for each age group to see if a situation is more or less prevalent in any age group. For example, accidental deaths of automobile passengers in the 0-16 year age group occur more frequently (24%) than the general involvement of this age group in vehicular fatalities (6%). Deaths of pedestrians in the 20-29 year age group occur less frequently (17%) than all vehicular fatalities in this age group (35%) while such deaths in the 70+ year age group occur more frequently (35%) than the general involvement of this group in vehicular fatalities (18%).

VEHICULAR DEATHS BY AGE
FY 1993-94

Figure 16.

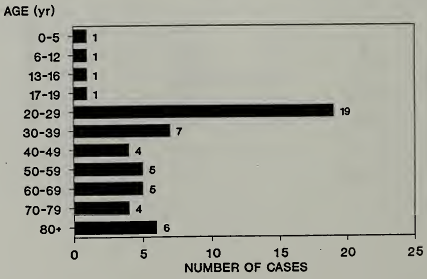


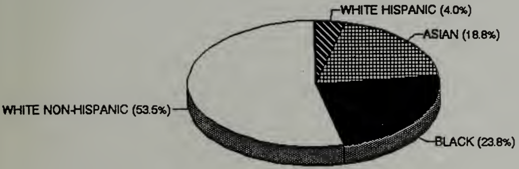
TABLE XVIII. DEMOGRAPHICS OF VEHICULAR FATALITIES

	Sex		Race					Age
	%M	%F	%W-NH	%W-H	%B-NH	%A	%O	AVE. AGE
Situation								
AUTO DRIVER	78	22	67	0	11	22	0	38
AUTO PASSENGER	50	50	25	12	25	38	0	31
MOTORCYCLE DRIVER	83	17	100	0	0	0	0	24
PEDESTRIAN	72	28	45	3	34	17	0	53
BICYCLE DRIVER	100	0	100	0	0	0	0	31
TRUCK DRIVER	0	100	100	0	0	0	0	22
AVERAGE	70	30	54	4	24	19	0	43

The most notable change in demographics of vehicular fatalities from fiscal year 1992-93 was an increase in the percentage of auto drivers who were white, from 45% in 1992-93 to 67% in 1993-94 and a concomitant decrease in the percentage of auto drivers who were black, from 27% in 1992-93 to 11% in 1993-94. The percentage of pedestrian fatalities who were Asian decreased from 28% of the total in 1992-93 to 17% in 1993-94.

RACE OF VEHICULAR DEATH VICTIMS
FY 1993-94

Figure 17.



SUICIDES

The determination of suicide as a manner of death represents the summation of scene investigation, including a review of psychological state, autopsy, pathology, toxicology and, frequently, other investigation. To the best of our knowledge, ours is the only Medical Examiner's Office routinely performing toxicology testing on multiple organs and/or body fluids in order to evaluate the metabolic status of a drug or drugs.

Realizing the immense emotional impact on family, the diagnosis of suicide is never made lightly, and always represents a decision made on the basis of data sufficient to defend that decision in a court of law, if necessary. Should these data be inconclusive, the victim automatically gets the benefit of the doubt.

Suicide takes a tremendous toll of our young people. The relative number jumping from the Golden Gate bridge would not seem to warrant the publicity assigned them as compared to the evident need for help for individuals using other methods.

To help understand the problem, and hopefully, to aid in reduction of suicides, this office has supported suicide prevention and research programs for many years. It is hoped that this work will help to reduce this needless loss.

The majority of these deaths are situational reactions, and, if given momentary trained support, are potentially preventable.

SUICIDAL DEATHS

One hundred and thirty-six deaths were ruled to have been due to suicide during the 1993-94 fiscal year. The number of individuals dying by each method of suicide are presented in Figure 18, page 43, and Table XIX, page 44, and the percentages of all suicidal deaths by type are indicated in Table XIX, page 44, along with alcohol and drug involvement for each mode.

Abuse Drug Involvement (Table XX, page 44)

Abuse drugs were present in 29 cases of suicidal deaths in 1993-94 as compared to 17 cases in 1992-93. The abuse drugs seen most frequently in suicidal deaths were cocaine (11 cases) and amphetamines (14 cases). This contrasts with 1 case of suicide with amphetamines present in 1992-93. Heroin (measured as morphine) was found in 4 cases of suicidal death in 1993-94, the same as in 1992-93. Abuse drugs were associated more frequently with deaths caused by drug overdose (12 cases) than with any other mode of suicide, as compared to 2 such cases in 1992-93. Abuse drugs may have played a role in suicidal deaths by firearms (6 cases).

Racial Distribution (Table XXI and Figure 19, page 45)

Deaths from suicide occurred most frequently in whites (73% of total suicides). The white racial group has been divided into Hispanic and non-Hispanic in this tabulation. It can be seen that the white Hispanic group was involved in only 4% of all suicides but in 25% of all suicides by cutting/stabbing. The mode of jumping from buildings also was used more frequently by blacks (25%) than would have been expected by the overall percentage of suicides by blacks (10%).

Age Distribution (Table XXII, p. 46, Table XXIII, p. 47 and Figure 20, p. 47)

There was 1 death by suicide in the 13-16 year age group during this fiscal year as compared to 0 in 1992-93 and 2 in 1991-92. There were 4 suicides in the 17-19 year age group as compared to 2 in 1992-93 and 4 in 1991-92. There was a large increase (from 14 to 30) in the number of suicides in the 20-29 year age group. This followed a previous large decrease (from 26 to 14) from fiscal year 1991-92 to 1992-93. The 30-39 year age group has the highest percentage of suicides of any age group with deaths from drug overdoses being particularly prevalent in this age group. Death by firearms appears to be the mode of suicide used most frequently by older adults with 26% of the deaths of those over age 60 being due to gunshot.

Distribution by Sex (Table XXIV, page 48)

Males were more likely than females to commit suicide in 1993-94 (81% male, 19% female).

SUICIDES

Suicides are self-inflicted deaths. In San Francisco, the 136 suicides which are being tabulated account for 9.4% of the Medical Examiner death investigations for the fiscal year of 1993-94.

SUICIDE METHODS IN FY 1993-94

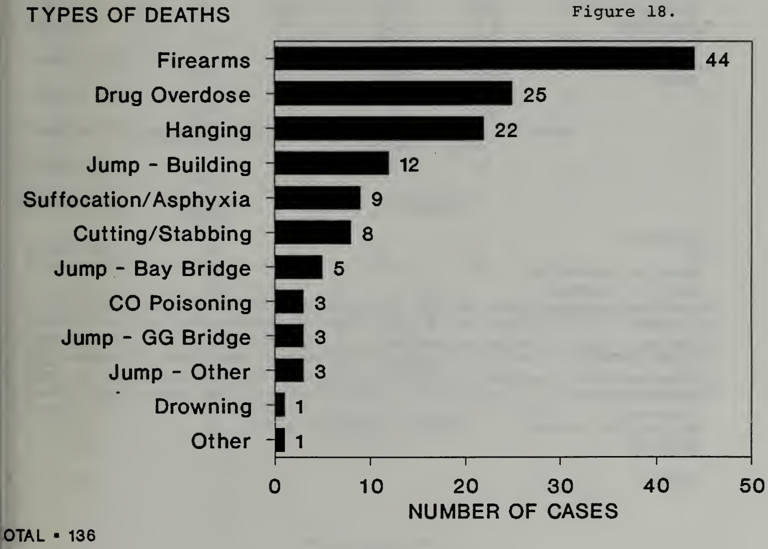


Figure 18.

TABLE XIX. SUICIDAL DEATHS BY MODE

Abuse Drug and Alcohol Involvement

METHOD	NUMBER	% OF TOTAL SUICIDES	% WITH ALCOHOL	AVE. ALC. CONC.(g%)	% WITH DRUGS
DRUG/POISON OVERDOSE	25	18.4	28	0.13%	40
FIREARMS	44	32.4	26	0.18%	19
HANGING	22	16.2	32	0.11%	14
JUMP-BUILDING	12	8.8	9	0.28%	9
ASPHYXIA/ SUFFOCATION	9	6.6	67	0.21%	0
SMOKE/CO POISONING	3	2.2	0	-	0
JUMP-GG BRIDGE	3	2.2	33	0.29%	33
JUMP-BAY BRIDGE	5	3.7	40	0.07%	0
JUMP-OTHER	3	2.2	67	0.12%	0
CUTTING/STABBING	8	5.9	12	0.05%	50
DROWNING	1	0.7	0	-	0
OTHER	1	0.7	-	-	-

TABLE XX. ABUSE DRUGS PRESENT IN SUICIDAL DEATHS

	Drugs			
	Cocaine	PCP	Morphine	Amphetamines
Situation				
ASPHYXIA/SUFFOCATION	0	0	0	0
SMOKE/CO POISONING	0	0	0	0
CUTTING/STABBING	1	0	1	2
FIREARMS	4	0	0	2
HANGING	1	0	1	3
JUMP-BUILDING	0	0	0	1
JUMP-GG BRIDGE	1	0	0	0
JUMP-BAY BRIDGE	0	0	0	0
JUMP-OTHER	0	0	0	0
DRUG/POISON OVERDOSE	4	0	2	6
DROWNING	0	0	0	0
TOTALS	11	0	4	14

TABLE XXI. SUICIDE METHODS BY RACE

	Race					
Method	W-NH	W-H	B-NH	Asian	Other	Total
Asphyxia/Suffoc.	9 (100%)	0	0	0	0	9
Smoke/CO Poisoning	3 (100%)	0	0	0	0	3
Cutting/Stabbing	5 (62%)	2 (25%)	1 (12%)	0	0	8
Drug/Poison OD	21 (84%)	0	2 (8%)	1 (4%)	1 (4%)	25
Drowning	1 (100%)	0	0	0	0	1
Firearms	29 (66%)	2 (4%)	4 (9%)	8 (18%)	1 (2%)	44
Hanging	14 (64%)	1 (4%)	2 (9%)	4 (18%)	1 (4%)	22
Jump-Building	5 (42%)	0	3 (25%)	4 (33%)	0	12
Jump-GG Brdg	2 (67%)	0	0	1 (33%)	0	3
Jump-Bay Bridge	2 (40%)	0	2 (40%)	1 (20%)	0	5
Jump-Other	2 (67%)	1 (33%)	0	0	0	3
Other	1 (100%)	0	0	0	0	1
TOTALS (NO.)	94	6	14	19	3	136
% OF TOTALS	69%	4%	10%	14%	2%	

* Row percentages refer to percentages by race for each method. These can be compared to total percentages for each race to see whether a method is more or less prevalent in a racial group. For instance, suicides by jumps from buildings appear to occur more frequently in Asians (33%) than the general involvement of Asians in suicides (14%), and deaths by overdoses in white non-Hispanics (84%) occur more frequently than all suicides in white non-Hispanics (69%).

RACE OF SUICIDE VICTIMS
FY 1993-94

Figure 19.

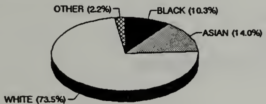


TABLE XXII. SUICIDE METHODS BY AGE

Method	Age 13-16	17-19	20-29	30-39	40-49	50-59	60-69	70-79	80-89	90-99
Asphyxia/Suffoc.	0	0	2 (22%)	1 (11%)	1 (11%)	2 (22%)	1 (11%)	2 (22%)	0	0
CO Poisoning	0	0	0	3 (100%)	0	0	0	0	0	0
Cutting/Stabbing	0	1 (12%)	1 (12%)	2 (24%)	2 (24%)	1 (12%)	1 (12%)	0	0	0
Drowning	0	0	0	0	0	0	0	1 (100%)	0	0
Drug/Poison O.D.	0	0	4 (16%)	7 (28%)	8 (32%)	3 (12%)	2 (8%)	1 (4%)	0	0
Firearms	1 (2%)	3 (7%)	7 (16%)	5 (11%)	4 (9%)	12 (11%)	5 (4%)	2 (4%)	5 (11%)	0
Hanging	0	0	10 (45%)	4 (18%)	3 (14%)	2 (9%)	1 (4%)	0	2 (9%)	0
Jump-Building	0	0	2 (17%)	4 (33%)	2 (17%)	2 (17%)	1 (8%)	0	0	1 (8%)
Jump-GG Bridge	0	0	1 (33%)	2 (67%)	0	0	0	0	0	0
Jump-Bay Bridge	0	0	3 (60%)	1 (20%)	0	1 (20%)	0	0	0	0
Jump-Other	0	0	0	1 (33%)	1 (33%)	0	1 (33%)	0	0	0
Other	0	0	0	1 (100%)	0	0	0	0	0	0
TOTAL NO.	1	4	30	31	21	23	12	6	7	1
% OF TOTAL	1%	3%	22%	23%	15%	17%	9%	4%	5%	1%

* Row percents refer to percentage by age range for each method. These can be compared to total percentages for each age range to see if a method is more or less prevalent in an age group. For example, hanging appears to occur more frequently in the 20-29 years of age group (45%) than the general involvement of this age group in suicides (22%) while deaths by firearms in the 50-59 year age group (27%) occur more frequently than all suicides in this age group (17%). It should be noted that (80%) or 4 out of the 5 suicides in those under age 19 were due to firearms.

SUICIDES

TABLE XXIII. AGE RANGES - COMPARISON BY YEAR

Age Range	'86-'87	'87-'88	'88-'89	'89-'90	'90-'91	'91-'92	'92-'93	'93-'94
0 - 19	2	6	3	1	2	6	2	5
20 - 29	22	36	30	18	20	28	14	30
30 - 39	45	28	33	39	37	34	32	31
40 - 49	28	24	28	30	23	30	36	20
50 - 59	30	23	22	12	29	14	13	23
60 - 69	20	19	19	11	15	12	12	12
70 - 79	12	17	21	6	19	17	14	7
80 - 89	9	5	11	7	8	9	8	7
90 - 99	3	4	3	4	1	3	1	1
Unknown	0	0	1	0	0	0	0	0

SUICIDE VICTIMS BY AGE
FY 1993-94

Figure 20.

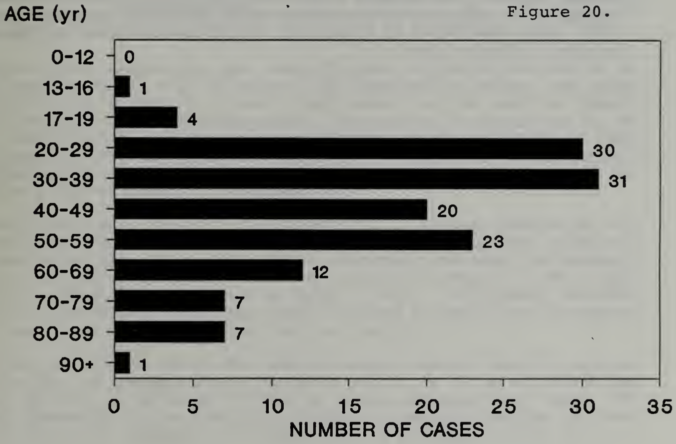


TABLE XXIV. SUICIDE METHODS BY SEX

Method	Sex Male	 Female
Asphyxia/Suffocation	7 (78%)	2 (22%)
Smoke/CO Poisoning	2 (67%)	1 (33%)
Cutting/Stabbing	8 (100%)	0 (0%)
Drowning	1 (100%)	0 (0%)
Drug/Poison Overdose	17 (68%)	8 (32%)
Firearms	38 (86%)	6 (14%)
Hanging	18 (82%)	4 (18%)
Jump-Building	9 (75%)	3 (25%)
Jump-GG Bridge	2 (67%)	1 (33%)
Jump-Bay Bridge	5 (100%)	0 (0%)
Jump-Other	2 (67%)	1 (33%)
Other	1 (100%)	0 (0%)
TOTALS	110 (81%)	26 (19%)

* Row percents refer to percentages by sex for each mode. These can be compared to total percentages for each sex to see whether a mode is more or less prevalent in one sex. For example, deaths by cutting/stabbing appear to occur more frequently in males (100%) than the general involvement of males in suicides (81%), while females die by drug/poison overdose more frequently (32%) than all suicides in females (19%).

HOMICIDE

Homicide is the killing of one human being by another. Murder is the unlawful killing of a human being with malice. The following data do not differentiate homicide as to whether it was justifiable, accidental, or murder. Such distinctions are the proper function of the judicial system and are not the responsibility or function of this office.

Any judicial system which deals with crimes involving death requires a well-trained staff and well-equipped Medical Examiner's Office which can and will interpret forensic findings in an unbiased, fair manner. Their investigation must be intense, accurate and rapid enough so that charges may be pursued or dismissed without unfairly affecting an individual's constitutional rights. This is the purpose of this office.

The proper evaluation and investigation of a homicide begins, naturally, at the scene. In the majority of cases, a staff member of this office (either the Investigator, Administrative Coroner, or Medical Examiner), determines whether a death is potentially a homicide. It has been well-documented that, if such a determination is made by an individual inexperienced or untrained in death investigation, his opinion will be wrong in 50% of the cases. Such a person is very apt to miss the subtle homicide and is more inclined to miscall a natural or accidental death as homicide, resulting in false arrest, false accusations, needless expenditure of public funds, waste of investigative time and delay in the investigation of other deaths.

The Investigator responds to the scene of death and determines whether the Police Homicide Detail will be called. When homicide is obvious, the Investigator responds as part of a team (other members include homicide investigators, photographers and criminologists). This office is responsible for the body, identification, inquiry into circumstances, manner and means of death (Gov. Code 27491.2). In addition to the scene investigation, the Investigator is responsible for recovering property, locating and notifying next of kin, and preparing a written summary of his investigation.

In about one-third to one-half of all homicides, a forensic pathologist will respond to the scene and aid in the investigation. The subsequent autopsy may also use photography, fluoroscopy, X-ray, angiography and other techniques to establish and define the number, nature and severity of wounds, to obtain evidence (i.e. bullets) and to prepare an official report. This report, including chemistry, serology and toxicology results, is used as part of the prosecution or defense of the case in the formal judicial hearing.

Pertaining to criminal trial, our judicial system requires identification of an individual and presentation of evidence, usually by virtue of expert testimony, relative to the cause of death or trauma associated with death. The Medical Examiner's Office identifies the body, frequently relying on local police, CII, or FBI fingerprints. Expert forensic testimony is given by

the Forensic Pathologist from this office. In addition, the Forensic Toxicologist is frequently called upon to testify on the significance and effect of various drug levels, a matter of great importance when dealing with the concept of diminished capacity.

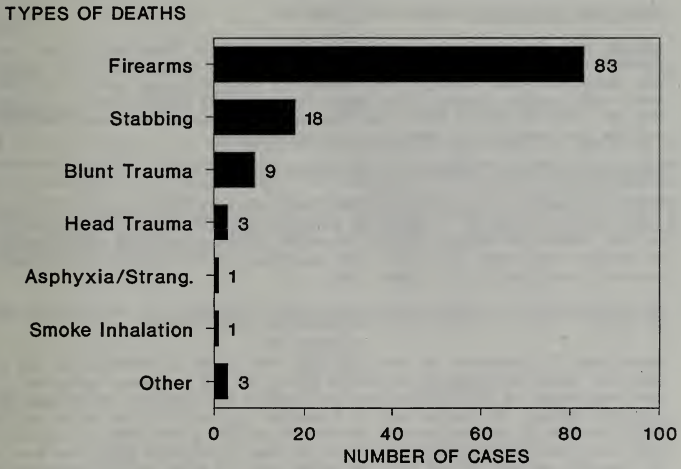
Of minor, but increasing importance, is the fact we are seeing more homicide and trauma cases transferred into the County for medical therapy because of San Francisco's excellent and advanced medical facilities. Should these individuals die, the autopsy and court testimony are done by this office.

NON-VEHICULAR HOMICIDES

Homicides are those deaths caused by another person, generally resulting in murder and manslaughter charges. In San Francisco, 118 non-vehicular homicides occurred in 1993-94, accounting for 8% of the total Medical Examiner investigations.

Figure 21.

HOMICIDE METHODS IN FY 1993-94



TOTAL • 118

HOMICIDE DEATHS

One hundred and twenty-nine deaths were ruled to have been due to homicide during the 1993-94 fiscal year. Of these, 11 were vehicular homicides and have been discussed in the "Vehicular Deaths" section. The remaining 118 homicide deaths are the basis for the tabulations in this section. The numbers of individuals dying by each manner of death are indicated in Figure 21, page 52 and Table XXV, page 53; percentages of all homicides represented by specific methods are indicated in Table XXV, page 53. The total number of non-vehicular homicides decreased by 7% from 127 in 1992-93 to 118 in 1993-94. The number of homicide deaths by firearms increased 11%, from 75 to 89. Of the homicide victims tested for alcohol and drugs (those in the hospital for less than 24 hours), about 25% had positive blood alcohol levels; more than 33% had drugs present. The percent of homicide victims with positive blood tests for drugs varied with the method of homicide with 36% of those dying by firearms and 33% of those dying from stabbing having drugs present.

Abuse Drug Involvement (Table XXVI, page 53)

Cocaine was the abuse drug seen most frequently in homicide victims, being present in 35 homicide cases as compared to 38 such cases in 1992-93. Cocaine was associated most strongly with deaths by gunshot wound, with 27 of the 35 cases with cocaine present (77%) being deaths due to gunshot wounds. Stabbing was the homicide method which was associated with drugs next most frequently; cocaine was present in 5 cases who died by stabbing.

Racial Distribution (Table XXVII and Figure 22, page 54)

Overall, deaths by homicide occurred with nearly equal frequency in blacks (41%) and whites (43%). Deaths by stabbing occurred with equal frequency in whites, blacks and Asians (33%). Deaths by stabbing occurred more frequently in Asians (33%) than would have been predicted by the overall involvement of Asians in homicides of all types (15%).

Age Distribution (Fig. 23, p. 55, Tables XVIII and XXIX, p. 56 and Table XXXI, p. 57)

There were 11 homicides in the 0-19 year age group, a decrease of 31% from 1992-93! Death by firearms accounted for 10 or 91% of these homicides. The peak occurrence of both deaths due to firearms and stabbing was in the 20-29 year age group. Of deaths due to firearms, 71% were in the 20-39 year age group as were 61% of the stabbing deaths. There were 4 homicides in individuals age 70 or over during 1993-94. As can be seen from Table XXXI, the mean age of homicide victims varies with the mode, with no clear pattern observed for both males and females for any mode. It is interesting to note (See Table XXIX) that the number of homicide victims aged 70+ has decreased from 15 in '85-'86 to 4 in '93-'94 - a decrease of 73%.

Distribution by Sex (Table XXX, page 57)

Males were more than 3.5 times as likely to be homicide victims as females.

TABLE XVII. HOMICIDE METHODS BY RACE

	Race					
Method	W-NH	W-H	B-NH	Asian	Other	Total
Asphyxia/Strang.	0	1 (100%)	0	0	0	1
Head Trauma	1 (33%)	1 (33%)	1 (33%)	0	0	3
Firearms	25 (30%)	8 (10%)	36 (43%)	12 (14%)	2 (2%)	83
Stabbing	5 (28%)	1 (5%)	6 (33%)	6 (33%)	0	18
Blunt Trauma	7 (78%)	1 (11%)	1 (11%)	0	0	9
Smoke Inhalation	0	0	1 (100%)	0	0	1
Other	1 (33%)	0	2 (67%)	0	0	3
TOTALS	39	12	47	18	2	118
% OF TOTAL	33%	10%	40%	15%	2%	

* Row percentages refer to percentages by race for each method. These can be compared to total percentages for each race to see whether a method is more or less prevalent in a racial group. For instance, death by blunt trauma appears to occur more frequently in white/non-Hispanics (78%) than the general involvement of white/non-Hispanics in homicides (33%) while deaths due to blunt trauma appear to occur less frequently in blacks (11%) than all homicides in blacks (40%).

RACE OF HOMICIDE VICTIMS
FY 1993-94

Figure 22.

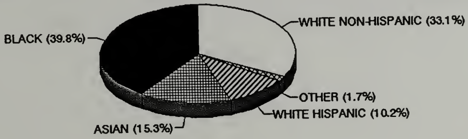


TABLE XXV. HOMICIDAL DEATHS BY MODE

Abuse Drug and Alcohol Involvement

METHOD	NUMBER	% OF TOTAL HOMICIDES	% WITH ALCOHOL*	AVE. ALC. CONC.(g%)	% WITH DRUGS**
FIREARMS	83	70	27	0.13%	36
STABBING	18	15	22	0.24%	33
BLUNT TRAUMA	9	8	25	0.08%	62
ASPHYXIA/ STRANGULATION	1	1	0	-	0
HEAD TRAUMA	3	3	0	-	0
SMOKE INHALATION	1	1	0	-	0
OTHER	3	3	50	0.15%	66

* Refers to percentage of victims (of those tested) with positive blood ethyl alcohol concentrations

** Refers to percentage of victims (of those tested) with positive blood tests for abuse drugs.

TABLE XXVI. DRUGS PRESENT IN NON-VEHICULAR HOMICIDAL DEATHS

	Drugs			
Situation	Cocaine	PCP	Heroin	Amphetamines
ASPHYXIA/STRANGULATION	0	0	0	0
TRAUMATIC INJURIES	2	0	2	3
GUNSHOT WOUND	27	0	2	3
STABBING	5	0	0	0
SMOKE INHALATION	0	0	0	0
OTHER	1	0	1	0
TOTALS	35	0	5	6

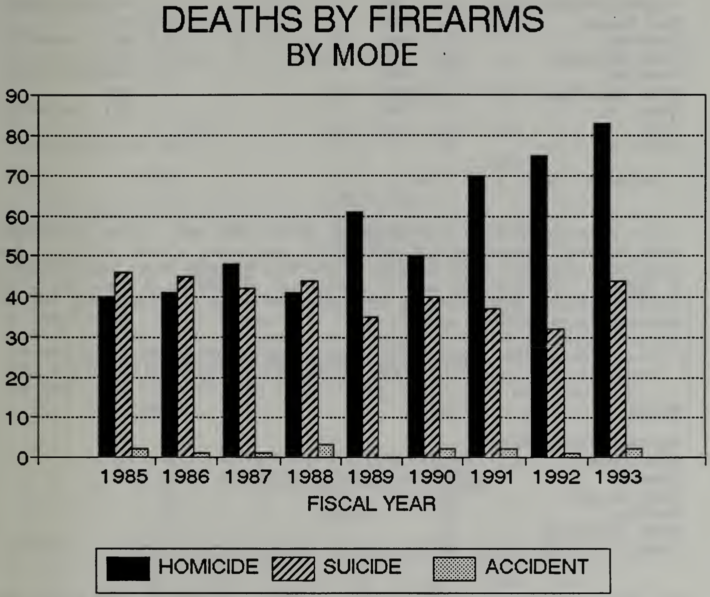

DEATHS BY FIREARMS
BY MODE
NUMBER OF CASES
0
10
20
30
40
50
60
70
80
90
1985
1986
1987
1988
1989
1990
1991
1992
1993
FISCAL YEAR
HOMICIDE
SUICIDE
ACCIDENT

Figure 24.

TABLE XXX. HOMICIDE METHODS BY SEX

	Sex	
Method	Male	Female
Asphyxia/Strangulation	0 (0%)	1 (100%)
Head Trauma	2 (67%)	1 (33%)
Firearms	67 (81%)	16 (19%)
Blunt Injuries	5 (55%)	4 (44%)
Stabbing	15 (83%)	3 (17%)
Smoke Inhalation	1 (100%)	0 (0%)
Other	3 (100%)	(0%)
TOTALS	93	25
% OF TOTALS	(79%)	(21%)

* Row percents refer to percentages by sex for each mode. These can be compared to total percentages for each sex to see whether a mode is more or less prevalent in one sex. For example, deaths from firearms occur less frequently in females (16%) than the general involvement of females in homicides (21%), while deaths from blunt injuries in males (55%) occur less frequently than all homicides in males (79%).

TABLE XXXI. MEAN AGE FOR HOMICIDE VICTIMS BY METHOD AND SEX
(Age in Years)

Method	Male	Female
Asphyxia/Strangulation	-	31
Head Trauma	43	55
Firearms	28	35
Blunt Trauma	58	34
Stabbing	34	44
Smoke Inhalation	51	-
Other	31	-

The lowest mean age for males was seen in deaths by firearms. The lowest mean age for females was seen in victims of asphyxia/suffocation.

TABLE XVIII. HOMICIDE METHODS BY AGE

	Age									
Method	0-12	13-16	17-19	20-29	30-39	40-49	50-59	60-69	70-79	80+
Asphyxia/Strang.	0	0	0	0	1 (100%)	0	0	0	0	0
Head Trauma	0	0	0	0	1 (33%)	0	2 (67%)	0	0	0
Firearms	1 (1%)	3 (4%)	6 (7%)	43 (52%)	16 (19%)	8 (10%)	2 (2%)	2 (2%)	2 (2)	0
Blunt Trauma	0	0	0	1 (11%)	3 (33%)	1 (11%)	1 (11%)	2 (22%)	1 (11%)	0
Stabbing	1 (6%)	0	0	7 (39%)	4 (22%)	3 (17%)	2 (11%)	0	0	1 (6%)
Smoke Inhalation	0	0	0	0	0	0	1 (100%)	0	0	0
Other	0	0	0	2 (67%)	1 (33%)	0	0	0	0	0
TOTALS	2	3	6	53	26	12	8	4	3	1
% OF TOTALS	(2%)	(3%)	(5%)	(45%)	(22%)	(10%)	(7%)	(3%)	(3%)	(1%)

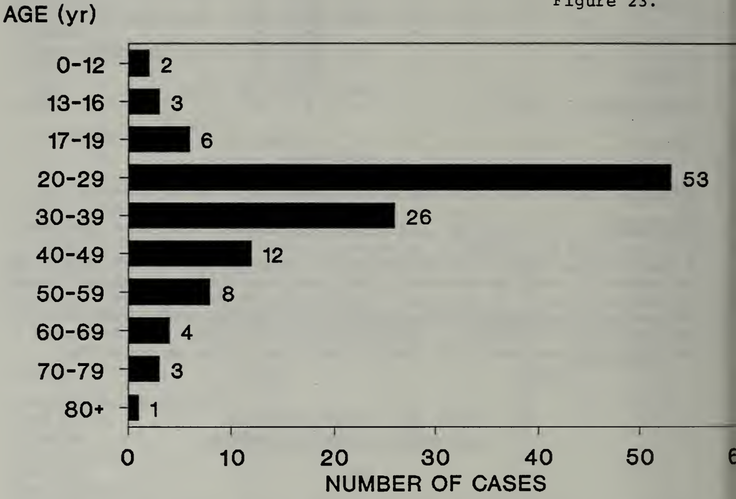
* Row percents refer to percentage by age range for each method. These can be compared to total percentages for each age range to see if a method is more or less prevalent in an age group. For example, deaths by firearms occur more frequently in the 20-29 year age group (57%) than the general involvement of this age group in homicides (39%) while such deaths occur less frequently in the 30-39 year age group (13%) than all homicides in this age group (20%).

TABLE XXIX. HOMICIDE VICTIMS AGE RANGES - COMPARISON BY YEAR

	YEAR							
Age range	'86-'87	'87-'88	'88-'89	'89-'90	'90-'91	'91-'92	'92-'93	'93-'94
0 - 19	8	16	18	16	13	19	16	11
20 - 29	28	28	31	28	37	39	49	53
30 - 39	27	41	28	28	27	32	25	26
40 - 49	18	12	15	15	12	17	14	12
50 - 59	11	13	9	6	5	10	13	8
60 - 69	8	8	4	5	5	0	3	4
70 and above	10	5	2	6	5	6	7	4

HOMICIDE VICTIMS BY AGE
FY 1993-94

Figure 23.



MONTHLY FIGURES

1993-1994

PATHOLOGY*

YEAR	TOTAL MED-EXAM CASES	CASES REFERRED TO PATHOLOGIST	NO. OF ORGANS SUBMITTED	NO. OF SECTIONS TAKEN	HISTO PATHOLOGIC SLIDES MADE	SPECIAL STAINS **	BLOOD TYPINGS ***	OTHER DETERMINATIONS ****
1992								
JUL	125	85	399	720	359	90	52	202
AUG	107	81	295	521	291	46	30	96
SEP	111	71	299	523	253	27	35	119
OCT	94	67	277	432	239	62	26	97
NOV	123	81	365	683	372	64	38	77
DEC	126	76	379	776	405	83	41	144
1993								
JAN	158	102	327	617	345	38	44	208
FEB	116	74	406	701	369	57	32	19
MAR	120	84	341	623	338	64	48	198
APR	115	71	484	893	493	108	53	91
MAY	140	94	332	593	342	84	45	103
JUN	116	71	322	589	297	19	25	139
TOTALS	1451	957	4226	7671	4103	742	469	1493

*	These figures do not reflect photography, forensic radiology, or material prepared for teaching forensic pathology
**	Includes smears examined for bacteria and spermatozoa
***	ABO and Anti-Rh typing + blood drawings
****	Blood, urine, water, evidence for: hematology, biochemistry, urinalysis, bacteriology, serology, "Sickledix," etc. + blood drawing

PATHOLOGY

In the Pathology Department, tissue and body fluid samples taken at autopsy are prepared for microscopic study, histochemically stained, or analyzed for chemical constituents. Cardiac pacemakers or other mechanical life-support devices are examined for any defect. Smears or "wet-mounts" are examined for spermatozoa, bacteria, or tuberculosis. Bacteriologic cultures may be taken. However, if pathogens are grown, they are usually sent to the Department of Public Health (State or local) for further identification. If indicated, "soft" X-rays or histochemical tests are done to establish entrance or exit gunshot wounds. New research techniques, such as methods of obtaining fingerprints from the skin of a victim, are developed here also.

Toxicology, Continued

Levels of drugs in two or more body compartments (one of which is invariably blood) are routinely determined in order to answer the question of whether the drug use is acute or chronic. This approach is of the utmost importance in determining the time of ingestion and whether or not the intent of the ingestion was suicide.

The range of drugs available to the public is extremely wide, and the nature and type of compounds involved are highly variable. The methodologies necessary to conduct toxicological analyses have to be similarly wide-ranging and also continually expanded in order to keep up with the manufacture of new drugs, both legal and illegal. This is an important aspect of the Toxicology Department's work, often requiring extensive research. So, too, does the identification of "street-manufactured" compounds which are sometimes found in post-mortem samples. Also, with many drugs being compounded to have physiologic effects at very low doses, detection in body fluids is often extremely difficult.

The most common drugs in the community are alcohol and prescription items. However, illegal, or "street", drugs (especially morphine-type alkaloids [e.g. heroin], cocaine, and amphetamines) represent a very significant percentage of the compounds actually found in the cases presented to the Toxicology Department. Less commonly used drugs, industrial materials, certain gases, and various other foreign compounds have also been detected.

TOXICOLOGY

Toxicology is the study of the interaction of foreign compounds, such as drugs, with living organisms (e.g. people). It involves knowing something of the nature of that interaction, how the foreign compounds break down (that is, how they are metabolized), and what effects they have on the health and behavior of the organism.

All of this information is vital to the role that toxicology plays in determining the cause of death, as well as in evaluating the significance of chemicals found in the living.

Generated within the Toxicology Department is information on samples from Medical Examiner's cases as well as from suspects in criminal cases (e.g.. homicides, driving under the influence, probation failure, (H & S 11550), assaults) and other persons to be tested at the request of various law enforcement agencies. The data obtained in these cases enable the toxicologist to assist in interpreting the behavior of the suspects involved, to advise the District Attorney, the Public Defender, the City Attorney, Police Department, the California Highway Patrol, and other agencies, and to give expert testimony in court as necessary in such cases as to the effect of drugs in the case. This application of toxicological facts to legal problems is Forensic Toxicology.

The Toxicology Department also performs analyses on samples submitted by the Police and Fire Departments in connection with the recruitment programs and other personnel requirements. The results in some cases are presented to the respective commission in official hearings.

Toxicological facts are determined through tests performed on biological samples (e.g. blood, urine, gastric contents, liver, etc.) taken at the time of autopsy or from living persons. The samples are subjected to a series of chemical manipulations designed to extract any drugs or other physiologically active compounds that may be present. The subsequent extracts are then examined by equipment set up to detect, accurately identify, and quantitate any materials that may be present. These determinations must be of unquestionable accuracy and as specific as scientifically possible, and they must be able to stand up to review by any other qualified laboratory in the nation.

The analytical methods most commonly used in the toxicological studies are gas and thin layer chromatography; ultraviolet, visible, and fluorescence spectrophotometry; and immunoassay techniques. Advanced techniques, such as mass spectrometry and HPLC (High Performance Liquid Chromatography) are used as necessary for confirmation of difficult samples. These precise and sophisticated methods require the use of advanced laboratory apparatus and highly trained personnel.

TOXICOLOGY
MEDICAL EXAMINER - CORONER'S CASES

SAN FRANCISCO CITY AND COUNTY
July 1993 - June 1994

Incidence of drugs and other physiologically active material detected

The compounds listed are not necessarily the cause of death nor even a contribut factor. They are the toxic agents that were found to be present, either singly in combination, in Medical Examiner's cases.

ABUSE DRUGS

Cocaine	155
Benzoylecgonine	164*
Morphine-type alkaloids	167
Codeine	96
Methamphetamine	58
Amphetamine	49
Phencyclidine (PCP)	0

ANTI-DEPRESSANTS

Amitriptyline (Elavil)	11
Nortriptyline (Aventyl)	12
Desipramine (Norpramin)	11
Imipramine (Tofranil)	4
Doxepin (Sinequan)	5
Fluoxetine (Prozac)	4
Trazodone (Desyrel)	1
Sertraline (Zoloft)	2
Clomipramine (Anafranil)	1

*Benzoylecgonine is not a drug of abuse. It is a metabolite of cocaine and generally present when cocaine is detected. In some cases, benzoylecgonine, but cocaine, was found which indicated that there had been some exposure to cocaine.

ANALGESICS - NARCOTIC

Methadone	21
Methadone Metabolite	17
Propoxyphene (Darvon)	7
Norpropoxyphene	6
Meperidine	1
Hydrocodone	2
Hydromorphone	3
Oxycodone	2
Fentanyl	3

ANALGESICS - NON-NARCOTIC

Acetaminophen	5
Salicylates	3
Pentazocine (Talwin)	1

CARDIAC DRUGS

Lidocaine	60
Metoprolol (Lopressor)	2
Propranolol (Inderal)	3

SEDATIVE-HYPNOTICS
Barbiturates

Secobarbital	5
Pentobarbital	3
Phenobarbital	5
Amobarbital	0
Butalbital	2

ANTIHISTAMINES

Diphenhydramine (Benadryl)	17
Chlorpheniramine	1
Doxylamine	4
Promethazine (Phenergan)	6

DECONGESTANTS

Phenylpropanolamine	4

BRONCHODILATORS

Ephedrine	14
Theophylline	1
Pseudoephedrine	3

Drugs Detected, Continued

ANTICONVULSANTS

Diphenylhydantoin (Dilantin)	12
Carbamazepine (Tegretol)	5

ANTIPSYCHOTIC AGENTS

Chlorpromazine (Thorazine	2
Thioridazine (Mellaril)	2
Haloperidol (Haldol)	1

MISCELLANEOUS

Carbon Monoxide	15
Acetone	3
Quinine	2
Butane	2
Malathion	1
Insulin	1
Carisoprodol	1
Trimethoprim	1
Trichloroethanol	2
Phenazone	1
Verapamil	1

ANTI-ANXIETY AGENTS

Diazepam (Valium)	52
Nordiazepam	51
Chlordiazepoxide (Librium)	7
Temazepam (Restoril)	3
Alprazolam (Xanax)	1
N-Desalkylflurazepam	2
Hydroxyzine	1
Clonazepam (Klonopin)	1
Flurazepam (Dalmane)	1
Triazolam (Stelazine)	2
Meprobamate	3

TOXICOLOGY CASES

July 1993 - June 1994

Year/ Months	No. of Cases Referred for Testing Med. Examiner	Forensic Toxicology*	Total Cases	Total Tests Performed
1993				
JUL-SEPT	350	330	680	4345
OCT-DEC	342	309	651	4729
1994				
JAN-MAR	396	300	696	5273
APR-JUNE	340	398	738	5226
TOTALS	1428	1337	2765	19573

*Cases in which specimens were referred to the Medical Examiner's Toxicology Laboratory for forensic toxicological examination generally were criminal cases in which the presence of drugs was suspected either in the victim or suspect of the crime. DUI, 11550, management control, out-of-county and other miscellaneous cases are included in this tabulation.

ABUSE DRUGS

The role of abuse drugs in deaths during the 1993-94 fiscal year is presented in this section. The four abuse drugs most commonly seen in Medical Examiner's cases - cocaine, heroin, amphetamines and PCP - will be examined. The number of cases in which these drugs were found either alone or in combination with other abuse drugs are presented in Table XXXII, page 69. In drug caused deaths, heroin was the most frequently observed drug of abuse where drugs were present either alone or when drugs were present in combination.

Distribution by Sex (Table XXXIII, page 70)

In deaths caused by abuse drugs (DC = drug caused), where the drugs were present either singly or in combination, 69-100% of the deceased individuals were males, depending upon the abuse drug.

Distribution by Race (Table XXXIII, page 70)

White/Non-Hispanic (W-NH) - In drug-caused deaths where abuse drugs were present singly, the white non-Hispanic racial group predominated in deaths caused by heroin and amphetamines. In drug-caused deaths where abuse drugs were present in combination with other abuse drugs, the white non-Hispanic racial group predominated in deaths caused by all abuse drugs being studied.

Black/Non-Hispanic (B-NH) - In drug-caused deaths and drug-related deaths where abuse drugs were present singly, the black non-Hispanic racial group predominated only in deaths where cocaine was present (50% and 59%, respectively). Black/non-Hispanics were only minimally represented in other categories of drug-caused and drug-related deaths.

White/Hispanic (W-H) - This racial group was most heavily represented in drug-caused deaths where heroin was present alone.

Distribution by Age (Table XXXIII, page 70)

The lowest mean age was seen in drug-related deaths with amphetamines present alone (28.7 years) while the highest mean age was seen in drug-caused deaths with cocaine present alone (42.6 years).

Alcohol Involvement (Table XXXIII, page 70)

The presence of alcohol in the blood of abuse drugs users was most often associated with deaths caused by heroin alone (62%) and was least associated with deaths due to amphetamines alone (11%).

Deaths Involving Cocaine (Figure 25, p. 71 and Tables XXXIV and XXXV, p. 73)

Cocaine alone was the cause of death in 18 cases by overdose, a 42% decrease from the previous fiscal year (31 cases). Cocaine alone was also present in 39 drug-related deaths (See Table XXXIV) including 6 ruled to be accidental, 5 ruled to be by suicide, 27 ruled to be by homicide, 1 due to natural causes, and 1 with mode undetermined. Notably, 29 of these 39 drug-related deaths (74%) were due to gunshot or stabbing.

Cocaine in combination with other drugs was the cause of death in 72 cases by overdose, an 18% increase from 1992-93. Cocaine in combination was also present in 10 drug-related deaths (See Table XXXV) including 1 case ruled to be accidental, 2 cases ruled to be by suicide, 7 cases ruled to be by homicide, and 2 with mode undetermined. Of these 10 deaths, 7 (70%) were due to gunshot or stabbing.

The number of deaths due to cocaine over the last 7 fiscal years is shown in Figure 25. It can be seen that the number of deaths due to cocaine decreased by 2 from 1992-93.

Deaths Involving Heroin (Figure 25, page 71 and Table XXXVI, page 76)

Heroin alone was the cause of death in 29 cases by overdose, a decrease of one case from the preceding fiscal year. Heroin alone also was present in 1 drug-related death. The involvement of heroin alone in drug-related deaths was very low as compared to the involvement of cocaine or amphetamines in this type of death, both in number and manners of death.

Heroin in combination with other drugs was the cause of death in 84 cases by overdose, a 20% increase from the previous fiscal year total of 70 cases and a 110% increase over fiscal year 1991-92's 40 cases. Heroin in combination was present in 6 drug-related deaths, 1 of which was due to cutting/stabbing.

The numbers of deaths due to heroin over the last 21 fiscal years are shown in Figure 27, page 78. The number of such deaths for 1993-94 is the second highest seen during the last 21 fiscal years.

Deaths Involving Amphetamines (Figure 25, page 71 and Table XXXVII, page 77)

Amphetamines alone were the cause of death in 9 cases by overdose, a 3.5 fold increase over the previous fiscal year. Amphetamines alone were also present in 12 drug-related deaths, 5 of which (42%) were the result of gunshot or stabbing.

Amphetamines in combination with other drugs were the cause of death in 26 cases by overdose, an increase of 73% over the previous fiscal year. Amphetamines in combination with other drugs were present in 5 drug-related deaths, 2 of which (40%) were due to gunshot or stabbing.

Abuse Drugs Present in Violent Deaths (See Figure 26, page 75)

Cocaine is the drug of abuse seen most frequently in deaths by homicide, suicide and vehicular deaths.

TABLE XXXII. ABUSE DRUGS

SAN FRANCISCO MEDICAL EXAMINER-CORONER'S CASES

Abuse Drugs Present Alone

Drug	Drug Caused Deaths	Drug Related Deaths	Role Unclear	Incidental Finding
Cocaine alone	18	39	10	7
Heroin alone	29	1	2	5
Amphetamines alone	9	12	1	0
PCP alone	0	0	0	0

Abuse Drugs Present in Combination with Other Drugs

Drug	Drug Caused Deaths	Drug Related Deaths	Role Unclear	Incidental Finding
Cocaine in combination	72	10	8	3
Heroin in combination	84	6	2	6
Amphetamines in combin.	26	5	3	1
PCP in combination	0	0	0	0

TABLE XXXIII. ABUSE DRUGS

INCIDENCE BY SEX, RACE, AGE, AND ALCOHOL INVOLVEMENT

Drugs Present Singly

	SEX		RACE					
Drug	%M	%F	%W-NH	%W-H	%B-NH	Mean Age	% WITH ALCOHOL	AVE. ALC. CONC (g%)
COCAINE-DC*	78	22	39	11	50	42.6	35	0.12
COCAINE-DR**	77	23	18	8	59	32.9	28	0.12
HEROIN -DC*	69	31	76	21	3	36.6	62	0.17
HEROIN -DR**	100	0	100	0	0	31.0	0	-
AMPHET.-DC*	89	11	56	0	33	41.0	11	0.07
AMPHET.-DR**	83	17	75	8	17	28.7	33	0.15
PCP-DC*	--------------------NONE--------------------------------							
PCP-DR**	--------------------NONE--------------------------------							

Drugs Present in Combination

	SEX		RACE					
Drug	%M	%F	%W-NH	%W-H	%B-NH	Mean Age	% WITH ALCOHOL	AVE. ALC. CONC (g%)
COCAINE+-DC*	88	12	74	3	22	39.4	43	0.12
COCAINE+-DR**	80	20	50	0	50	35.9	20	0.09
HEROIN+-DC*	81	19	82	10	14	40.6	47	0.12
HEROIN+-DR**	50	50	50	0	50	30.2	0	-
AMPHET+-DC*	92	8	88	4	8	38.0	35	0.09
AMPHET+-DR**	80	20	100	0	0	32.4	40	0.09
PCP+-DC*	100	0	0	100	0	23.0	0	-
PCP+-DR**	--------------------NONE--------------------------------							

* DC = Drug Caused
** DR = Drug Related

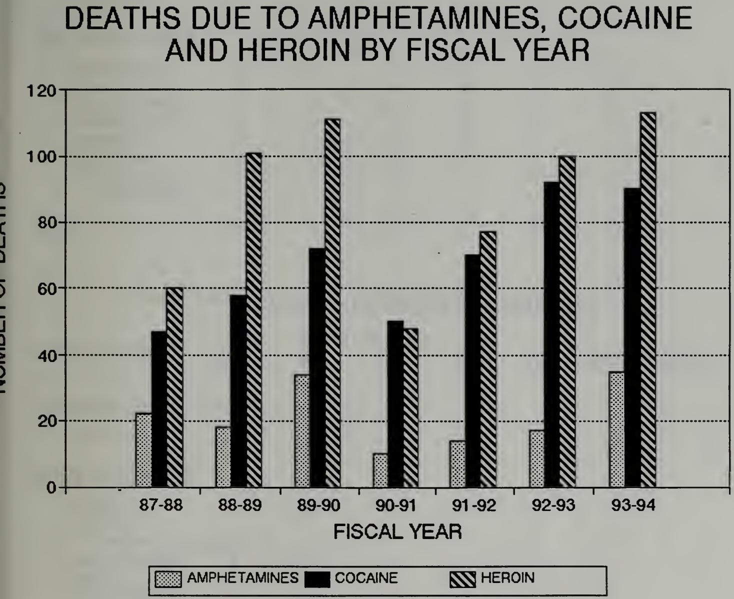

DEATHS DUE TO AMPHETAMINES, COCAINE AND HEROIN BY FISCAL YEAR
120
100
80
60
40
20
0
87-88
88-89
89-90
90-91
91-92
92-93
93-94
FISCAL YEAR
AMPHETAMINES
COCAINE
HEROIN

Figure 25.

DEATHS INVOLVING COCAINE

TABLE XXXIV. COCAINE PRESENT ALONE

CAUSE OF DEATH	Manner of Death ACC	SUI	HOM	NC	EQ	UND	TOTALS
Drug Caused Deaths							
OVERDOSE	17	0	0	0	0	1	18
Drug Related Deaths							
ENDOCARDITIS	2	0	0	0	0	0	2
JUMP-BRIDGE	0	1	0	0	0	0	1
GUNSHOT WOUND	0	3	21	0	0	0	24
TRAUMATIC INJ.	0	0	2	0	0	0	2
STABBING	0	1	4	0	0	0	5
VEHICULAR	3	0	0	0	0	0	3
INTRACEREBRAL HEMORRHAGE	1	0	0	1	0	0	2
TOTALS	23	5	27	1	0	1	57

TABLE XXXV. COCAINE IN COMBINATION WITH OTHER DRUGS

CAUSE OF DEATH	ACC	Manner of Death SUI	HOM	NC	EQ	UND	TOTALS
Drug Caused Deaths							
OVERDOSE	66	4	0	0	0	2	72
Drug Related Deaths							
STABBING	0	0	1	0	0	0	1
MULTIPLE TRAUMATIC INJURIES	0	0	1	0	0	0	1
GUNSHOT WOUND	0	1	5	0	0	0	6
HANGING	0	1	0	0	0	0	1
ENDOCARDITIS, PNEUMONIA	1	0	0	1	0	0	1
TOTALS	67	6	7	0	0	2	82

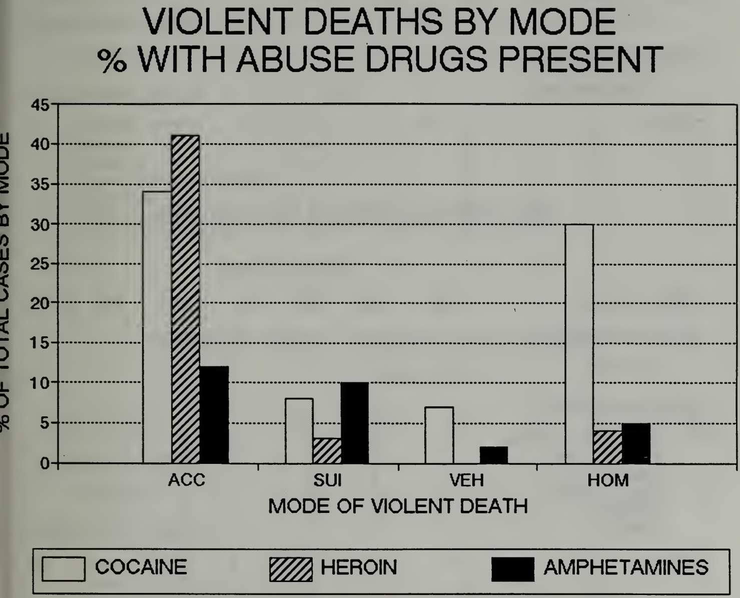

VIOLENT DEATHS BY MODE
% WITH ABUSE DRUGS PRESENT
% OF TOTAL CASES BY MODE
45
40
35
30
25
20
15
10
5
0
ACC
SUI
VEH
HOM
MODE OF VIOLENT DEATH
COCAINE
HEROIN
AMPHETAMINES

Figure 26.

TABLE XXXVI. DEATHS INVOLVING HEROIN

HEROIN PRESENT ALONE

	Manner of Death					
CAUSE OF DEATH	ACC	SUI	HOM	EQ	UND	TOTALS
Drug Caused Deaths						
OVERDOSE	29	0	0	0	0	29
Drug Related Deaths						
BRONCHOPNEUMONIA	1	0	0	0	0	1
TOTALS	30	0	0	0	0	30

HEROIN PRESENT IN COMBINATION WITH OTHER DRUGS

	Manner of Death						
CAUSE OF DEATH	ACC	SUI	HOM	NC	EQUIV	UND	TOTALS
Drug Caused Deaths							
OVERDOSE	76	2	0	0	2	4	84
Drug Related Deaths							
TRAUMATIC INJURIES	0	0	1	0	0	0	1
GUNSHOT WOUND	0	0	1	0	0	0	1
ENDOCARDITIS	0	0	0	1	0	0	1
RENAL DISEASE	0	0	0	1	0	0	1
PNEUMONIA	0	0	0	1	0	0	1
HANGING	0	1	0	0	0	0	1
TOTALS	76	3	2	3	2	4	90

TABLE XXXVII. DEATHS INVOLVING AMPHETAMINES

AMPHETAMINES PRESENT ALONE

	Manner of Death					
CAUSE OF DEATH	ACC	SUI	HOM	EQ	UNK	TOTAL
Drug Caused Deaths						
OVERDOSE	9	0	0	0	0	9
Drug Related Deaths						
GUNSHOT WOUND	0	2	2	0	0	4
HANGING	0	1	0	0	0	1
STABBING	0	1	0	0	0	1
STRANGULATION/ASPHYXIA	1	0	0	0	0	1
VEHICULAR	1	0	0	0	0	1
JUMP/FALL-BLDG	0	1	0	0	1	2
TRAUMATIC INJURIES	0	0	2	0	0	2
TOTALS	11	5	4	0	1	21

AMPHETAMINES PRESENT IN COMBINATION WITH OTHER DRUGS

	Manner of Death					
CAUSE OF DEATH	ACC	SUI	HOM	EQ	UNK	TOTAL
Drug Caused Deaths						
OVERDOSE	20	6	0	0	0	26
Drug Related Deaths						
GUNSHOT WOUND	0	0	1	0	0	1
STABBING/CUTTING	0	1	0	0	0	1
HANGING	0	2	0	0	0	2
TRAUMATIC INJURIES	0	0	1	0	0	1
TOTALS	20	9	2	0	0	31

DEATHS DUE TO HEROIN BY FISCAL YEA
DRUGS ALONE OR IN COMBINATION

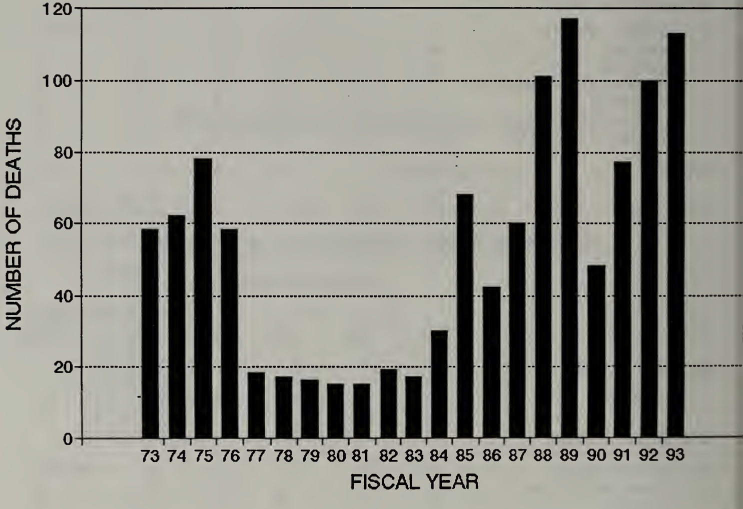


Figure 27.

GLOSSARY

ALKALOID OF MORPHINE GROUP	Typically referred to as morphine-type alkaloid, this is the chemical substance found in body fluids after the injection of heroin or other drugs derived from opium
TOXICOLOGY NOT VALID OR ELIMINATED	This term indicates that the deceased lived long enough after the injury to have eliminated some or all toxic agents from the body
FORENSIC PATHOLOGY	The specialty field of medicine involving the application of medical and pathology principles in determining the cause and manner of sudden, unexpected, and medically unattended deaths. This includes the type and nature of injury, public health hazards, type or nature of homicide weapon, the relation of injury to death and interpreting other factors for the court. These data are prepared and presented to the judicial system or public health interests in keeping with the best available knowledge
MODE OF DEATH	Indicates the manner of death, such as natural, accident, suicide or homicide, and is to be distinguished from cause of death, which is purely a medical determination
MODE EQUIVOCAL	With the cause of death determined, investigative data do not clearly differentiate between two modes of death, although some evidence supports one more likely
MODE UNDETERMINED	With the cause of death determined, investigative data do not clearly support one of two possible modes and either one is possible without prejudice
MODE UNKNOWN	Circumstances insufficient to indicate between possible modes, as when only bones are found, or when no medical cause of death is determined
PATHOLOGY	That branch of medicine which deals with the essential nature of disease, especially in the structural or functional changes in tissues, organs or systems of the body causing disease. It involves the diagnosis of disease by microscopic or chemical analysis
SEROLOGY	That branch of pathology which deals with the analysis of blood and body fluids. Blood types for identification, exclusion of a suspect or judicial purposes are examples of the use in this office

TOXICOLOGY	The scientific study of poisons, their detection, action and treatment. The relationship of drug levels to emotiona or personality change, behavioral or reasoning ability ar frequent decisions based on these data
MEDICAL EXAMINER	A physician specifically trained in forensic pathology wh is responsible for investigating and determining the caus and manner of sudden or unexpected death
AUTOPSY	A scientific dissection of the human body to determine th cause and nature of death in order to detect public healt hazards, determine the method or type of death in homicide and improve the level of medical care in the community In some cases, showing that no injury or wrongdoing wa present is of great emotional and stabilizing value to th family

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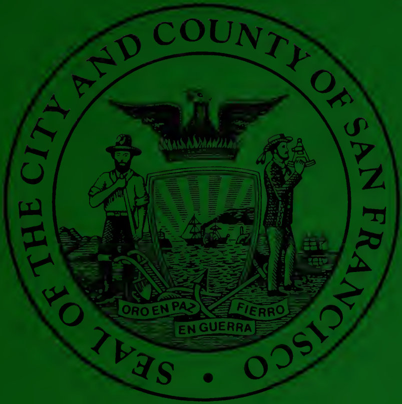
SEAL OF THE CITY AND COUNTY OF SAN FRANCISCO
ORO EN PAZ
FIERRO
EN GUERRA

ANNUAL REPORT
July 1, 1994 - June 30, 1995

BOYD G. STEPHENS, M.D.
Chief Medical Examiner

850 Bryant Street
San Francisco, California

MEDICAL EXAMINER'S OFFICE
City and County of
San Francisco, California

ANNUAL REPORT
July 1, 1994 - June 30, 1995

Lisa J. Nasir
Editorial/Prodution Assistant

Donna J. Allison, Ph.D.
Statistician and Data Analyst

Boyd G. Stephens, M.D.
Chief Medical Examiner

y and County of San Francisco **Chief Medical Examiner - Coroner**

June 1996

The Honorable Willie L. Brown, Mayor
Honorable Board of Supervisors
City and County of San Francisco
San Francisco, CA 94102

Dear Mayor Brown and Honorable Supervisors:

The attached annual report covers the fiscal year 1994-95.

This period represented a considerable time of turmoil for the department. Funding and staffing were our biggest problems. The workload continued to increase at the same time that budget reductions have limited our staff and reduced our operating budget. The diligence and hard work of the staff has allowed us to continue to provide vital public service and continued forensic medicine support for the community and judicial system.

Innovated programs have generated significant income for the department and saved the County a significant amount of money.

The growing judicial requirements for evidence collection have further increased the operating costs, and since the Simpson case, the type and amount of evidence collection has changed. Although the change is slight for this department, the costs attendant with that change are significant.

The Charter change will allow us to drop the word "Coroner" from our title, since the department was changed to Medical Examiner in 1974 (but under the old Charter was required to include the word "Coroner" in the department title). This change more properly reflects the forensic medicine activities of the department.

I am proud of all the hard-working staff who have frequently gone "that extra mile" to serve the public. Without their sacrifice, we would not be able to handle our workload.

Sincerely,

Boyd G. Stephens, M.D.
Chief Medical Examiner

5) 553-1694 **Hall of Justice, 850 Bryant Street** **San Francisco, CA 94103**

ACCREDITED NATIONAL ASSOCIATION OF MEDICAL EXAMINERS

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INTRODUCTION

The Medical Examiner-Coroner is appointed by law to many responsibilities, the foremost of which is the investigation and certification of a variety of deaths including all deaths of other than natural causation, and any apparently natural deaths in which no physician can reasonably state the cause. The Medical Examiner can utilize any and all medico-legal investigative techniques, including autopsy, to establish both the medical cause of death, and mode or circumstances of death (natural, accident, homicide, suicide or undetermined).

The deaths which must be reported to the Medical Examiner-Coroner, as required by various sections of the Government, Health and Safety and Penal codes, are as follows:

1. Homicide - known or suspected
2. Suicide - known or suspected
3. Following accident or injury (whether the accident or injury is the primary cause or contributory, with death occurring immediately or at some remote time)
4. Medical attendance of less than 20 days
5. No physician in attendance
6. Physician unable to state the cause of death (must be unable, not merely unwilling)
7. Poisoning (food, chemical, drug, therapeutic agents)
8. Occupational or industrial deaths
9. All deaths where a patient has not fully recovered from an anesthetic, whether in surgery, recovery room, or elsewhere
10. All deaths in operating rooms
11. All solitary deaths (unattended by physicians or other person in the period immediately preceding death)
12. All deaths in which the patient is comatose throughout the period of the physician's attendance
13. All deaths of unidentified persons
14. All deaths in which there are grounds to suspect that the death occurred in any degree from a criminal act
15. All deaths involving contagious disease - known or suspected - and constituting a public health hazard
16. Deaths in prison or while under sentence
17. All deaths associated with a rape - known or alleged - or crime against nature
18. All deaths related to or following abortion - known or suspected
19. All deaths involving drowning, fire, hanging, gunshot, stabbing, cutting, starvation, exposure, alcoholism, drug addiction, strangulation or aspiration

Additional mandated responsibilities include protecting and safekeeping of property belonging to deceased individuals, conducting inquests when indicated, maintaining proper public records, making reports to other agencies, identification of deceased persons, interment of indigent dead, and many other death-related activities.

FORENSIC MEDICINE

Forensic medicine generally is considered to be a marriage of medicine and the forensic sciences oriented to medicolegal issues. The field is wide-ranging and growing, becoming even broader in scope than the traditional concept as practiced in Europe. As a medical examiner, we commonly see living persons for medicolegal purposes often interpreting these findings for court purposes.

There has been continued growth and accentuation of the role of forensic medicine in the legal and medico-legal world over the past year. This office has continued its role in forensic medicine for both living and dead, playing a vital role in the community.

We serve in a number of places in the community. Some of these include:

Examination and diagnosis of the living:

- Examination and evaluation of child abuse
- Examination and evaluation of sexual assault injuries
- Examination and evaluation of spousal abuse
- Evaluation of citizens' complaints against the Police Department
- Testimony and interpretation of hospital records and procedures
- Evaluation of force and patterned injuries
- Examination of victims and suspects for trace evidence and injuries
- Collection of blood from suspects and victims for serology, toxicology and other testing
- Court testimony on force, great body injury (GBI) and other issues
- Alcohol and drug interaction in driving under the influence cases and related issues
- Physiologic effects of drug interactions
- Toxicology, including environmental and industrial toxicities
- Teaching - Hospitals, forensic, law enforcement, community
- Analysis for drugs on patients on probation
- Analysis for drugs on management control cases for the County

Examination and evaluation of the dead:

- Scene investigation, reconstruction and analysis
- Evidence collection and testing
- Blood spatter analysis and interpretation
- Patterned evidence analysis and interpretation
- Trace evidence collection
- Time and place of death information
- Forensic autopsy - consultation and interpretation
- Analysis for chemical and limited serology testing
- Forensic toxicology
- Consultation with District Attorney and Public Defender
- Reconstruction Analysis and court presentation
- Teaching - forensic and legal

DEPARTMENT STATUS AND FUTURE

The San Francisco Medical Examiner's Office continues to face some difficult challenges. Our overall workload continues to climb, both the work associated with those people who are deceased, and the work associated with those living persons coming in contact with the department in various ways. Because of the continuing regulations required compliance, the administrative workload is also up, and with the reduced staffing, this is a further burden. As indicated in the last report, we were able to upgrade an alcohol gas chromatograph with state mandate funding thanks to the help of the Chief Administrative Officer, Mayor, and Controller. We will have to do the work to revise the protocol and hope to put this instrument on-line this fiscal year. It has taken over one and one-half years so far to revise the existing forensic alcohol protocol which will be submitted to the State for review and hopefully approval.

Upgrading the toxicology instruments and staff remains a high priority for the department, and this was the subject of a Grand Jury review leading to a similar interpretation by the jury members.

We were able to develop a LAN with state mandate monies, and this system which includes data processing is now on-line budgeting and budget maintenance is finally a reality for the department. The quality of our records has improved considerably because of this one change, hopefully the data retrieval and problem-solving potential will be a major benefit to the department.

Plans for the future include improvements in the equipment, furniture, improving training and education on death investigation and business processes.

DEPARTMENTAL COSTS

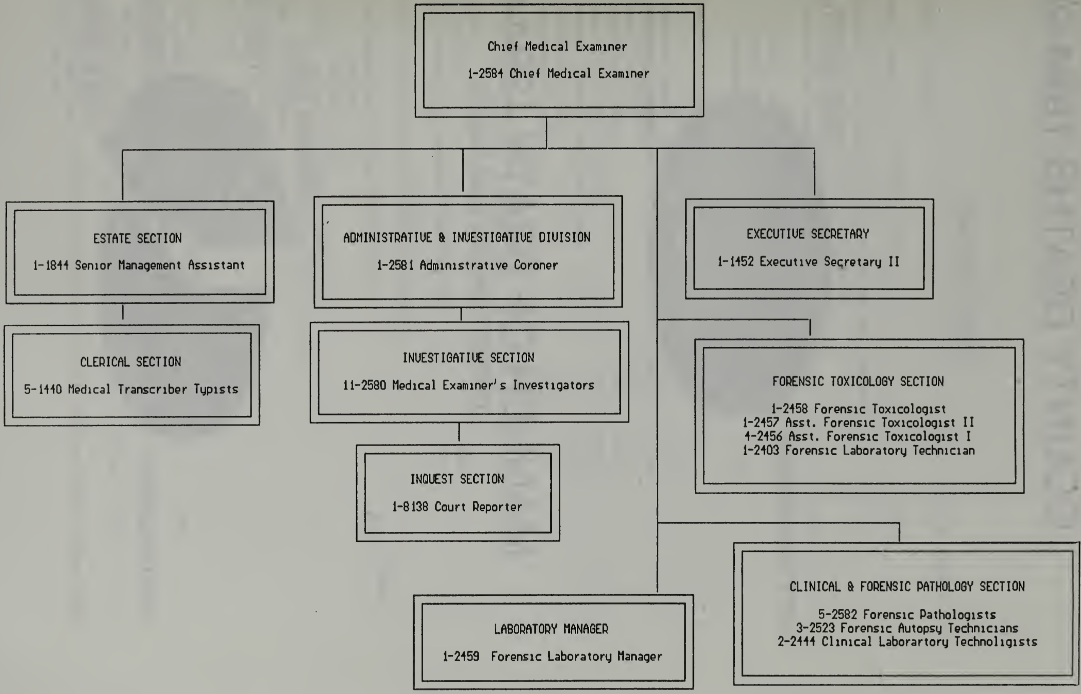
1994 - 1995

Total Budget	$2,863,485.00
Transfers to controller, Health and Retirement	$ 433,936.00
Net Budget (all other costs)	$2,429,549.00
Total Cases	4,596
Cost per case investigated	$ 529.00
Revenues (sales of records, public auctions, fee-for-service work)	$ 175,000.00
Total Costs *Ad Valorum* Taxes per case investigated	$ 491.00

As indicated elsewhere, this includes all investigative, administrative, scientific and expert witness costs to the County.

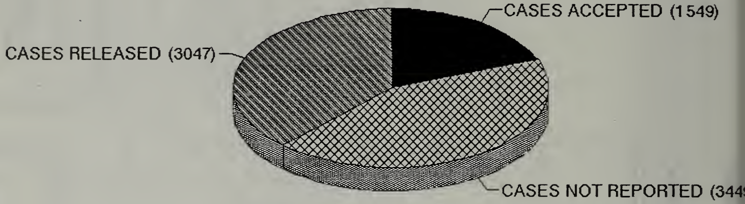
ORGANIZATIONAL CHART

Medical Examiner's Office


Chief Medical Examiner
1-2584 Chief Medical Examiner
ESTATE SECTION
1-1844 Senior Management Assistant
CLERICAL SECTION
5-1440 Medical Transcriber Typists
ADMINISTRATIVE & INVESTIGATIVE DIVISION
1-2581 Administrative Coroner
INVESTIGATIVE SECTION
11-2580 Medical Examiner's Investigators
INQUEST SECTION
1-8138 Court Reporter
EXECUTIVE SECRETARY
1-1452 Executive Secretary II
FORENSIC TOXICOLOGY SECTION
1-2458 Forensic Toxicologist
1-2457 Asst. Forensic Toxicologist II
4-2456 Asst. Forensic Toxicologist I
1-2403 Forensic Laboratory Technician
LABORATORY MANAGER
1-2459 Forensic Laboratory Manager
CLINICAL & FORENSIC PATHOLOGY SECTION
5-2582 Forensic Pathologists
3-2523 Forensic Autopsy Technicians
2-2444 Clinical Laborartory Technoligists

COUNTY DEATHS 1994-95

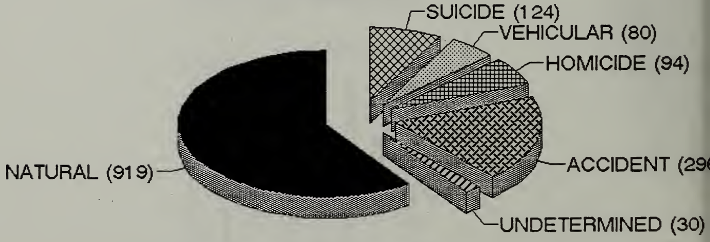
Figure 1.



MANNER OF DEATH 1994-95

JURISDICTION ON 1549 CASES

Figure 2.



FISCAL YEAR 1994-95

Total Deaths in County	8,045
Total Deaths Reported to Medical Examiner	4,596
Cases Reported, Investigated and Cleared by the Medical Examiner for physician's signature	3,047
Medical Examiner's Cases	1,549

% County Deaths Reported to Medical Examiner	57.1%
% County Deaths Having Medical Examiner's Jurisdiction	19.2%

Cases Accepted by the Medical Examiner (by manner of death)*

1. Natural Deaths (NC)	919	(59.3%)
2. Accidents (ACC)	296	(19.1%)
3. Suicides (SUI)	124	(8.0%)
4. Homicides (HOM)	94	(6.1%)
5. Mode Undetermined (UND)	30	(1.9%)
6. Sudden Infant Death Syndrome (SIDS)	6	(0.4%)
7. Vehicular (VEH)	80	(5.2%)
8. Private Autopsies	15**	

**Not included in above figures.

Autopsy Index

Full Autopsy	63%
Partial Autopsy or External Examination	37%

Dispositions Authorized by the Medical Examiner

1. Indigents and fetus dispositions Adults - 294 Infants - 16	310
2. Cases buried by funeral home with Public Administrator-controlled funds	51

Inquests Held or Depositions Taken	37

Identification

1. Persons brought to Medical Examiner's Office with insufficient identification	203
2. Persons subsequently identified by fingerprints, dental X-rays or other means	202
3. Persons interred as unidentified	1
4. Fingerprints taken and forwarded to FBI, CII, or SFPD	1,700

* The abbreviations following each manner of death will be used in most tables in this report.

CONSULTATIONS, COURT APPEARANCES, EXAMINATIONS AND REFERRALS
FISCAL YEAR 1994-95

Court appearances are made and consultations are conducted, as required, on cases involving both living and deceased individuals.

Type	Number
Court appearances	80
Consultations	904

Examinations

Suspected child abuse	4

Specimens submitted for toxicology testing from living individuals

Living victims or defendants in violent crimes	50
Management control - other City departments	1106
Probation - Juvenile	96
DUI suspects	779

MEDICAL EXAMINER CASES FOR 1994-95

In fiscal year 1994-95, there were 8,045 deaths in San Francisco County. Of these deaths, 4,596 were reported to the San Francisco Medical Examiner's Office. The Medical Examiner's Investigators examined the previous medical history, circumstances surrounding the deaths and, in many cases, the scene of the death, and determined that 1,549 of these deaths came under the jurisdiction of this office. (See Figure 1, page 8). Full or partial autopsies or external examinations were performed on all cases.

1. The highest total number of deaths occurred in January, 1995. The highest number for the various manners of death occurred during other months (e.g., highest numbers of homicides in January 1995, suicides in August 1994, the highest number of vehicular deaths in August 1994 and non-vehicular accidents in June 1995). See Table I and Figure 3, page 12.

2. The racial distribution for each manner of death was quite variable. For example, the value of the ratio of whites/blacks was 3.6 overall, 3.3 for accidents, 11.9 for suicides (as compared to 27.8 for 1989-90 and 13.4 for 1992-93) and 0.74 for homicides. See Table II, page 13 and Figure 5, Page 15.

3. The age range distribution for each manner of death was also variable. For example, the highest number of accidental deaths occurred in the 40-49 year age group, the highest number of homicides occurred in the 20-29 year age group, and the highest number of suicides occurred in the 30-39 year age group. See Table III, page 13.

4. The overall distribution of deaths by sex (ratio of male/female) was 2.1, but this varied by manner of death from 1.8 in deaths due to natural causes to 6.2 in homicide deaths. See Table IV and Figure 4, page 14.

MEDICAL EXAMINER CASES FOR 1994-95

TABLE I. MANNER OF DEATH - MONTHLY COMPARISON

Month of Death	Manner of Death							
	ACC	HOM	SUI	NC	VEH*	SIDS#	UND	TOTALS
July	23	8	7	68	4	1	2	113
August	21	8	15	57	11	1	2	115
September	20	6	11	69	8	2	4	120
October	30	11	14	67	8	1	3	134
November	24	3	8	76	4	0	1	116
December	17	8	11	83	3	0	4	126
January	23	12	7	96	10	1	2	151
February	33	4	14	86	5	0	4	146
March	25	6	11	83	9	0	3	137
April	19	11	10	71	8	0	3	122
May	26	10	9	86	3	0	0	134
June	35	7	7	77	7	0	2	135
TOTALS	296	94	124	919	80	6	30	1549

*VEH = Vehicular deaths. These include 6 deaths ruled to be homicide, 73 cases ruled to be accidental, and 1 ruled to be suicide.

# SIDS = Sudden Infant Death Syndrome

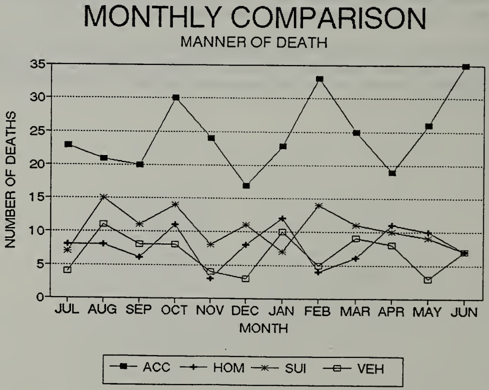


Figure 3.

TABLE II. MANNER OF DEATH BY RACE

Manner of Death

Race	ACC	HOM	SUI	NC	VEH*	SIDS#	UND	TOTALS
White	206	32	95	638	46	3	18	1038
Black	62	43	8	158	9	1	4	285
Asian	23	14	20	114	23	1	7	202
Other	5	5	1	9	2	1	1	24
TOTALS	296	94	124	919	80	6	30	1549

TABLE III. MANNER OF DEATH BY AGE

Manner of Death

Age Group	ACC	HOM	SUI	NC	VEH*	UND	TOTALS
0-11 months	5	1	0	8#	0	1	15
1-5 years	4	0	0	1	0	0	5
6-12 years	1	0	0	0	0	0	1
13-16 years	0	5	1	2	0	0	8
17-19 years	7	12	2	0	3	0	24
20-29 years	26	34	18	11	14	4	107
30-39 years	61	23	29	53	11	11	188
40-49 years	86	12	27	111	14	6	256
50-59 years	36	4	18	130	9	3	200
60-69 years	18	2	11	178	12	3	224
70-79 years	20	0	9	218	9	1	257
80-89 years	27	0	7	163	6	1	204
90 + years	5	0	2	50	2	0	59
Unknown	0	1	0	0	0	0	1
TOTALS	296	94	124	925	80	30	1549

# Includes 6 SIDS (Sudden Infant Death Syndrome) deaths

* VEH = Vehicular deaths. These include 6 deaths ruled to be homicide, 73 cases ruled to be accidental, and 1 ruled to be suicide.

TABLE IV. MANNER OF DEATH BY SEX

Manner of Death

Sex	ACC	HOM	SUI	NC	VEH*	SIDS#	UND	TOTALS
M	213	81	87	595	46	4	22	1048
F	83	13	37	324	34	2	8	501
Unknown	0	0	0	0	0	0	0	0
TOTALS	296	94	124	919	80	6	30	1549

* = Vehicular deaths. These include 6 cases ruled to be homicide, 73 ruled to be accidental, and 1 ruled to be suicide.

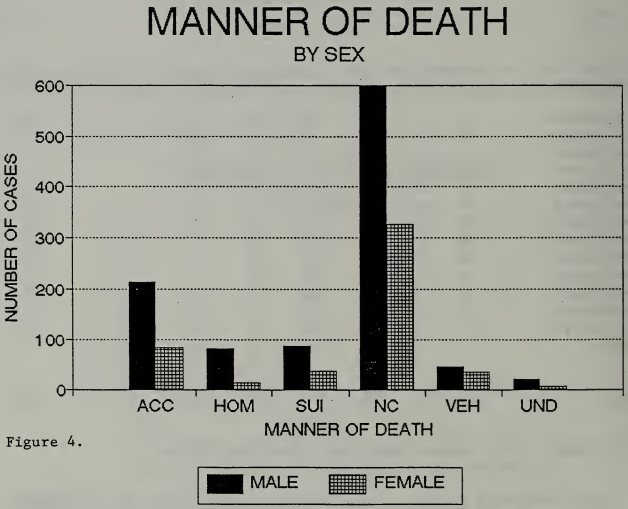


Figure 4.

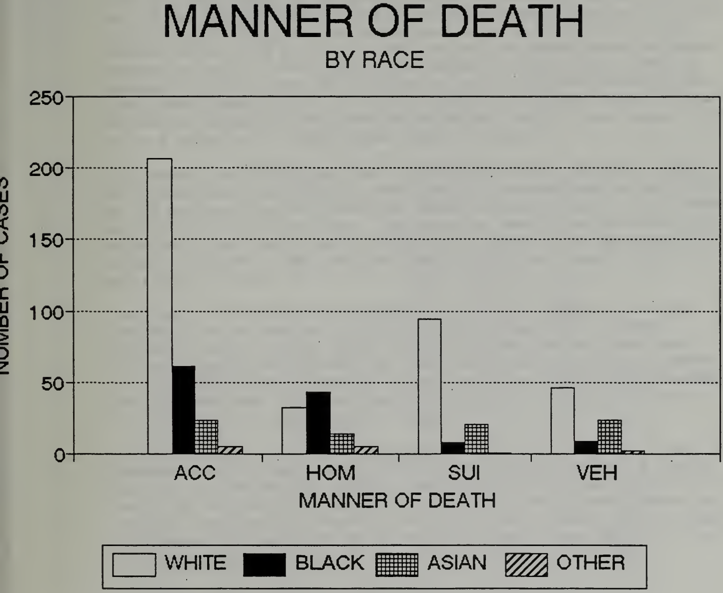

MANNER OF DEATH
BY RACE
NUMBER OF CASES
250
200
150
100
50
0
ACC
HOM
SUI
VEH
MANNER OF DEATH
WHITE
BLACK
ASIAN
OTHER

Figure 5.

YEARLY COMPARISON OF MEDICAL EXAMINER'S CASES

Comparisons of manners of death as well as methods used over the last eight fiscal years are presented in this section. The most significant differences which have occurred over the last eight years which can be observed in these tabulations include:

1. Regarding manners of death, the number of homicides (94) during fiscal year 1994-95 was a decrease of 20% from the 118 homicides recorded in 1993-94. The number of accidental deaths increased by 10% from 1993-94, and is the second highest number of accidental deaths during the last 8 fiscal years. The number of cases ruled to be suicide (124) was an decrease of 9% from fiscal year 1993-94 and the lowest number observed during the last 8 fiscal years. The number of deaths due to natural causes which came under the jurisdiction of this office increased 13% from fiscal year 1993-94. The total number of vehicular deaths (80) was the second highest number observed during the last 8 fiscal years. (See Table V and Figure 6, page 18 and Figure 2, page 8).

2. With respect to the methods used in homicide deaths, the most notable difference from the previous fiscal years is the decrease in homicides by all methods tabulated except for asphyxia/strangulation (3 in 1994-95 as compared to 1 in 1993-94). The number of deaths from firearms (68) while being the lowest number seen by this method since 1990-91 still accounts for 68% of the homicides (See table VI and Figure 7, page 19 and Figure 24, page 58).

3. There was a 9% decrease in the number of suicides during fiscal year 1994-95 (124) as compared to 1993-94 (136). There was a notable decrease (45%) in deaths due to firearms as compared to fiscal year 1993-94 (from 44 to 24 cases) but the downward trend in suicide deaths from drug overdoses (from 31 in 1992-93 to 25 in 1993-94) was reversed and increased 48% to 37 such deaths in 1994-95. (See Table VII and Figure 8, page 20, and Figure 24, page 58).

4. Regarding deaths ruled to be accidental, those which resulted from drug overdoses were at the highest level observed during the last 8 fiscal years (169). Deaths due to falls were at their third highest level seen during the last 8 fiscal years, increasing 23% from 48 such deaths in 1993-94. The number of deaths from falls is still second only to deaths from drugs as a leading cause of accidental deaths (See Table VIII and Figure 9, page 21, Figure 10, page 22 and Figure 24, page 58).

YEARLY COMPARISONS OF MEDICAL EXAMINER-CORONER'S CASES

TABLE V. YEARLY COMPARISON OF MANNER OF DEATH

Manner of Death	Fiscal year '87-'88	'88-'89	'89-'90	'90-'91	'91-'92	'92-'93	'93-'94	`94-'95
Accident	258	258	298	229	266	286	270	296
Homicide	110	91	94	88	123	127	118	94
Suicide	162	171	128	154	153	132	136	124
Natural	1074	1010	903	911	885	930	816	925
Vehicular*	75	71	76	83	79	79	54	80
Undet	82	85	76	72	53	58	42	30
TOTALS	1761	1686	1575	1537	1557	1612	1451	1549

* Vehicular deaths include 6 cases ruled to be homicide, 73 cases ruled to be accidental, and 1 ruled to be suicide.

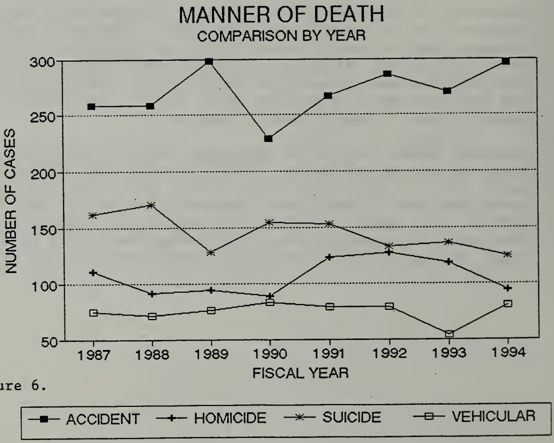


Figure 6.

TABLE VI. YEARLY COMPARISON OF HOMICIDE METHODS USED

Fiscal year

Method Used	'87-'88	'88-'89	'89-'90	'90-'91	'91-'92	'92-'93	'93-'94	`94-'95
Firearms	48	41	61	50	70	75	83	68
Stabbing	35	21	17	17	20	24	18	14
Traum. Inj.	23	22	10	14	22	16	12	9
Vehicular	13	16	10	16	15	14	11	6
Asphyxia/strang	3	5	3	5	7	4	1	3
Other	1	2	3	2	4	8	4	0
TOTALS	123	107	104	104	138	141	129	100

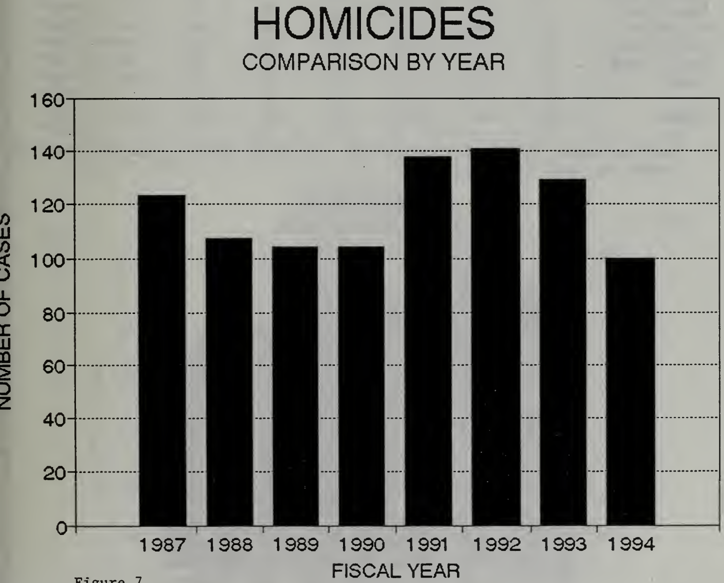


Figure 7.

TABLE VII. YEARLY COMPARISON OF SUICIDE METHODS USED

Fiscal year

Method Used	'87-'88	'88-'89	'89-'90	'90-'91	'91-'92	'92-'93	'93-'94	'94-'95
Burning	0	2	0	2	0	0	1	4
CO Poisoning	2	2	9	5	6	5	3	1
Cut/Stab	8	5	3	7	2	9	8	5
Drowning	3	2	0	1	2	3	1	3
Firearms	42	44	35	40	37	32	44	24
Hanging	28	17	23	25	23	22	22	19
Jump/Bay Brdg	1	2	2	0	2	1	5	2
Jump/Building	19	30	7	13	20	8	12	19
Jump/GG Brdg	18	15	10	13	4*	1	3	1
Jump/Other	-	-	-	-	2	3	3	0
Poisoning	32	44	31	37	44	31	25	37
Suff./Strang.	7	7	6	6	9	14	9	7
Vehic. BART	-	-	-	-	2	2	0	0
Other	2	1	2	7	0	2	0	2
TOTALS	162	171	128	156	153	133	136	124

* Starting midway in fiscal year 1991-92, most Golden Gate Bridge suicides were handled by Marin County.

Figure 8.

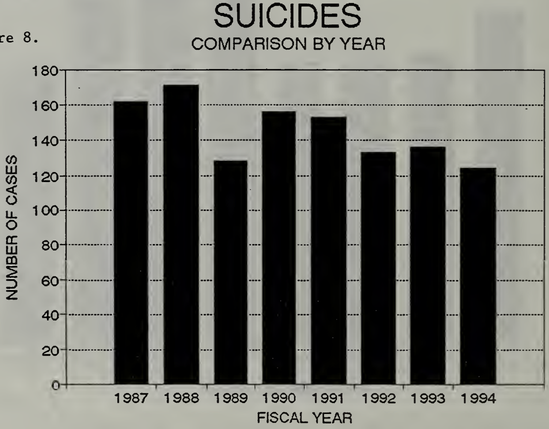
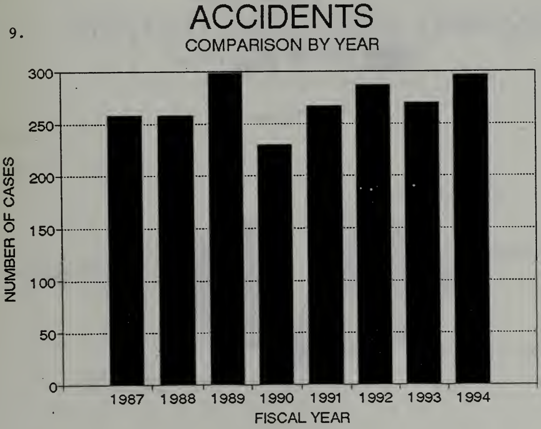


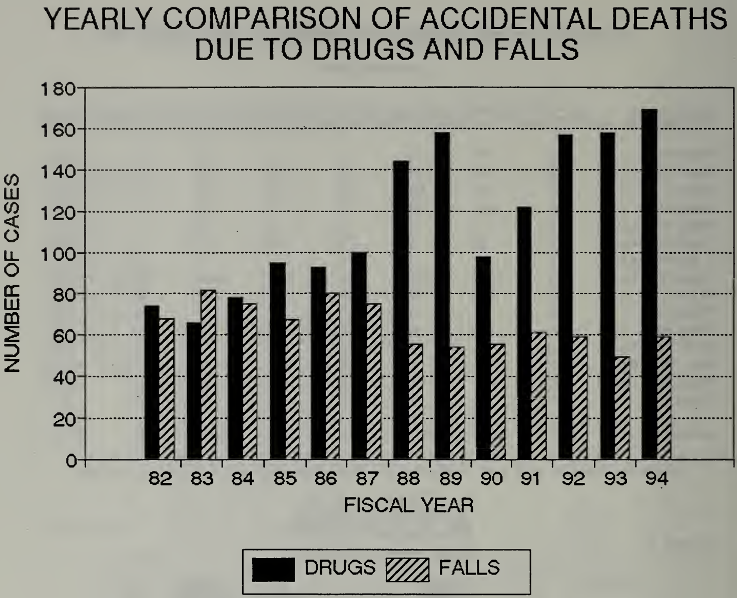
TABLE VIII. YEARLY COMPARISON OF ACCIDENTAL* DEATH SITUATIONS

	Fiscal year							
Situation	'87-'88	'88-'89	'89-'90	'90-'91	'91-'92	'92-'93	'93-'94	'94-'95
Asphyxia	2	8	8	3	3	5	5	2
Aspiration	10	5	13	10	12	6	12	17
Burns	12	3	15	10	4	4	8	7
Drowning	14	11	10	12	4	5	11	6
Drug Reactions	-	-	-	4	2	0	1	3
Drug/Alcohol Abuse Rel.	13	9	3	6	13	18	9	5
Drugs/Poisons	100	144	157	97	123	156	158	169
Falls	76	54	53	55	61	58	48	59
Firearms	1	3	0	2	2	1	2	2
Hanging	2	2	0	2	0	1	1	1
Head Trauma	-	-	11	3	1	6	1	4
Med. Misadv.	13	6	7	12	18	8	5	6
Smoke/CO inhal	8	11	4	8	14	6	2	7
Other	7	2	5	5	9	9	7	8
TOTALS	258	258	298	229	266	286	270	296

* Vehicular deaths are not included in this tabulation.

Figure 9.





YEARLY COMPARISON OF ACCIDENTAL DEATHS DUE TO DRUGS AND FALLS

Figure 10.

TABLE IX. VIOLENT DEATHS

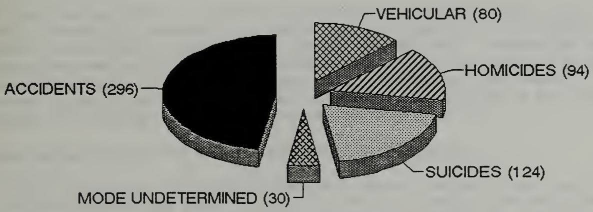
Of the 1,549 deaths investigated by the Medical Examiner's Office during 1994-95, 624 were determined to be the result of violence.

Mode	Total No.	% of Medical Examiner Cases	% of County Deaths
ACCIDENT	369	23.8	4.6
Vehicular	73	4.7	
Non-vehicular	296	19.1	
SUICIDE	125	8.1	1.6
Vehicular	1	0.1	
Non-vehicular	124	8.0	
HOMICIDE	100	6.5	1.2
Vehicular	6	0.4	
Non-vehicular	94	6.1	
MODE UNDETERMINED	30	1.9	0.4
Vehicular	0	0.0	
Non-vehicular	30	1.9	

VIOLENT DEATHS IN 1994-95

TOTAL=624

Figure 11.



ACCIDENTAL DEATHS

Three hundred and sixty-nine deaths were ruled to have been due to accidental means during the 1994-95 fiscal year. Of these, 296 were non-vehicular accidental deaths. The number of individuals dying by each manner of accidental death are indicated in Figure 12, page 27 and Table X, page 28, and the percentages of all accidental deaths represented by each manner are indicated on Table X, page 28.

Of the accidental death victims tested for alcohol and drugs (i.e. those in the hospital for less than 24 hours), many had significant levels of alcohol in their blood; many had abuse drugs present (See Table X, page 28).

Abuse Drug Involvement (Table XI, page 29)

Overall, the number times the 4 most common abuse drugs were found to be present in accidental death cases was 262, an 11% increase from fiscal year 1993-94. (Note that more than 1 abuse drug may have been present in a single case.) This is in contrast to the dramatic increases seen previously - from 110 cases in fiscal year 1990-91 to 163 cases in fiscal year 1991-92 (a 48% increase!) to 222 cases in fiscal year 1992-93 (a further 36% increase from the preceding fiscal year). Of the deaths caused by drugs, heroin (measured as morphine) was seen most frequently (116 cases), a slight increase of 5% from last fiscal year's 110 cases. The second most frequently seen abuse drug in deaths due to drugs was cocaine (84 cases), the same number as last fiscal year. The most notable change was related to amphetamines which were present in deaths due to drugs in 38 cases, an increase of 26% from last years count of 30 such deaths. The number of cases with cocaine present changed only slightly, by 5%, from the previous fiscal year (92 to 97). The number of cases with heroin present increased by 9% (from 111 to 121 cases). Deaths with amphetamines present increased by 34% during this same time period (from 32 to 43 cases). This follows a 47% increase in cases with amphetamines present between 1991-92 (15 cases) to 1992-93 (22 cases) and a 45% increase between 1992-93 and 1993-94 (32 cases). Abuse drugs may have played a role in accidental deaths by aspiration (3 cases) and falls (8 cases).

Racial Distribution (Figure 13, page 30 and Table XII, page 31)

Overall, accidental deaths occurred most frequently in whites. Deaths by firearms occurred less frequently in whites (0%) than would be anticipated by the overall involvement of whites in accidental deaths (70%). Asians are more heavily represented (17%) in deaths by drowning than would be expected by the involvement of Asians in accidental deaths (8%). Blacks are less heavily represented in deaths by falls (7%) than would be expected based on the general involvement of blacks in all types of accidental deaths (21%).

Age Distribution (Figure 14, page 32 and Table XIII, page 33)

Deaths due to aspiration and falls are the most common causes of accidental deaths in the youngest age group (0-5 years). There was only 1 non-vehicular accidental death in the age group from 6-16 years during 1994-95. The most common causes of accidental deaths in people over 60 years of age are burns (42%

of all deaths due to burns) and falls (70% of all deaths due to falls), and falls (56% of all deaths due to falls). Deaths due to drug overdoses are concentrated in the 20-49 year age group with 40% of all deaths due to drug overdoses occurring in the 40-49 year age group.

Distribution by Sex (Table XIV, page 34)

Males are 2.6 times as likely as females to be the victims of non-vehicular accidental deaths. This difference is less pronounced in deaths due to falls or drowning.

NON-VEHICULAR ACCIDENTS

This category includes all unintentional fatalities. There were 296 accidental deaths (non-vehicular) which accounted for 19.1% of the Medical Examiner death investigations for the fiscal year of 1994-95.

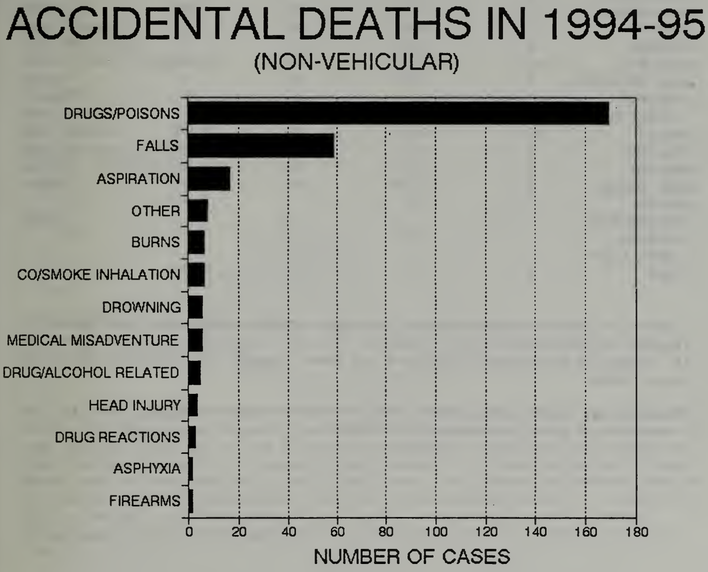


Figure 12.

TABLE X. ACCIDENTAL DEATHS BY MODE

Drug and Alcohol Involvement

METHOD	NUMBER	% OF TOTAL ACCIDENTS	% ALC.*	AVE. ALC. CONC (g%)	% DRUGS**
ASPHYX/SUFF	2	0.7	0	-	0
ASPIRATION	17	5.7	27	0.18%	17
BURNS	7	2.4	0	-	33
DROWNING	6	2.0	0	-	0
DRUG O.D.	169	57.1	43	0.14%	--
DRUG REACTIONS	3	1.0	0	-	0
DRUG/ALC ABUSE REL.	5	1.7	0	-	67
FALLS	59	19.9	27	0.17%	41
FIREARMS	2	0.7	50	0.03%	0
HANGING	1	0.3	0	-	0
HEAD TRAUMA	4	1.4	33	0.09%	67
MEDICAL MISADVENTURE	6	2.0	0	-	0
SMOKE/CO INHALATION	7	2.4	0	-	43
OTHER	8	2.7	50	0.16%	0

* Refers to percentage of victims (of those tested) with positive blood ethyl alcohol levels.
** Refers to percentage of victims (of those tested) with positive tests for abuse drugs.

It should be noted that a blood ethyl alcohol concentration of 0.08% is considered to be intoxicated when driving.

TABLE XI. ABUSE DRUGS PRESENT IN NON-VEHICULAR ACCIDENTS

	DRUGS			
Situation	Cocaine	PCP	Morphine	Amphetamines
ASPHYXIA/SUFFOCATION	0	0	0	0
ASPIRATION	1	0	1	1
BURNS	0	0	0	1
DROWNING	0	0	0	0
DRUG OVERDOSE	84	1	116	38
DRUG REACTIONS	0	0	0	0
DRUG/ALCOHOL ABUSE REL.	2	0	0	0
FALLS	5	0	2	1
FIREARMS	0	0	0	0
HANGING	0	0	0	0
HEAD TRAUMA	2	0	1	1
MEDICAL MISADVENTURE	0	0	0	0
SMOKE/CO INHALATION	3	0	1	1
OTHER	0	0	0	0
TOTALS	97	1	121	43

* Drugs may have been present singly or in combination

** Drugs used therapeutically are not included in this tabulation

Overall, the number of times (262) the 4 most common abuse drugs were present in accidental deaths (may be more than one drug present in a cases), increased 11% from 1993-94 (235) but is 61% higher than observed in 1991-92! The number of drug overdose deaths with cocaine present (alone or in combination with other drugs) was 84, the same as in last fiscal year. The number of overdose deaths with heroin present (measured as morphine) have increased from 47 in 1990-91 to 116 in 1994-95. PCP was present in 1 death. Accidental deaths in which amphetamines were present have steadily increased from 8 in 1990-91 to 43 in 1994-95.

RACE OF NON-VEHICULAR ACCIDENT VICTI

1994-95

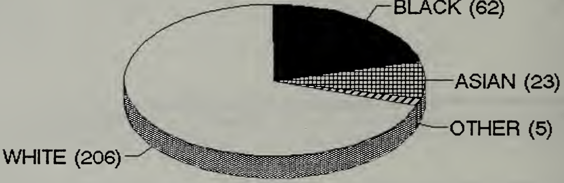


Figure 13.

TABLE XII. ACCIDENTAL DEATH SITUATIONS BY RACE

Method	Race White	 Black	 Asian	 Other	 Total
Asphyxia/Suff	2 (100%)*	0	0	0	2
Aspiration	12 (71%)	3 (18%)	2 (12%)	0	17
Burns	5 (71%)	1 (14%)	1 (14%)	0	7
Drowning	5 (83%)	0	1 (17%)	0	6
Drug/Alcohol Abuse Rel	2 (40%)	3 (60%)	0	0	5
Drug/Poison	122 (72%)	39 (23%)	4 (2%)	4 (2%)	169
Drug Reactions	1 (33%)	2 (67%)	0	0	3
Hanging	0	1 (100%)	0	0	1
Falls	44 (75%)	4 (7%)	10 (17%)	1 (2%)	59
Firearms	0	1 (50%)	1 (50%)	0	2
Head Trauma	1 (25%)	2 (50%)	1 (25%)	0	4
Medical Misadventure	3 (50%)	0	3 (50%)	0	6
Smoke/CO Inhalation	5 (71%)	2 (29%)	0	0	7
Other	4 (50%)	4 (50%)	0	0	8
Totals	206 (70%)	62 (21%)	23 (8%)	5 (2%)	296

* Row percentages refer to percentages by race for each mode. These can be compared to total percentages for each race to see whether a mode is more or less prevalent in a racial group. For instance, deaths from drowning appear to occur more frequently in whites (83%) than the general involvement of whites in accidents (70%). Deaths from falls occur less frequently in blacks (7%) than would be anticipated, based on the overall involvement of blacks in accidental deaths (21%). Deaths due to falls appear to occur more frequently in Asians (17%) than would be anticipated, based on the involvement of Asians in accidental deaths (8%).

AGE OF ACCIDENTAL DEATH VICTIM

FY 1994-95

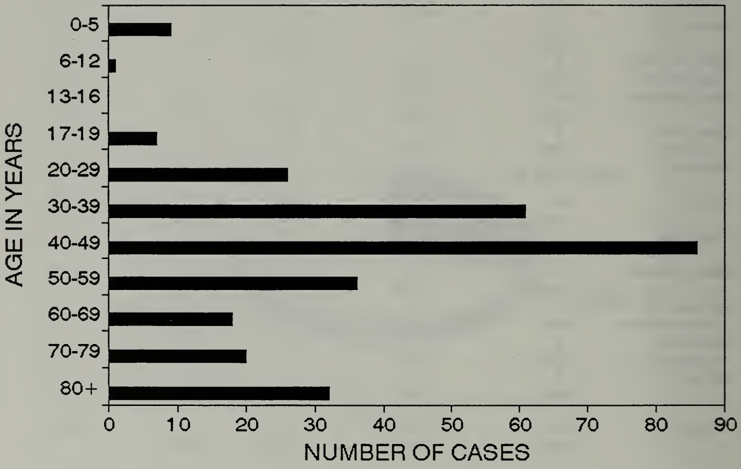


Figure 14.

TABLE XIII. ACCIDENTAL DEATH SITUATIONS BY AGE

	Age Range											
Method	0-5	6-12	13-16	17-19	20-29	30-39	40-49	50-59	60-69	70-79	80+	Ave. Age
Asphyxia	0	0	0	0	1 (50%)	0	0	0	0	0	1 (50%)	54.5
Aspiration	4 (24%)	0	0	0	0	0	2 (12%)	4 (24%)	3 (18%)	2 (12%)	2 (12%)	48.2
Burns	0	0	0	0	1 (14%)	1 (14%)	1 (14%)	0	0	2 (29%)	2 (29%)	58.9
Drowning	0	0	0	0	0	0	2 (33%)	1 (17%)	0	1 (17%)	2 (33%)	64.5
Drug/Alc Abuse Rel	0	0	0	0	0	2 (40%)	2 (40%)	1 (20%)	0	0	0	40.6
Drug O.D.	0	0	0	5 (3%)	22 (13%)	51 (30%)	68 (40%)	16 (9%)	7 (4%)	0	0	39.8
Hanging	0	1 (100%)	0	0	0	0	0	0	0	0	0	12.0
Falls	1 (2%)	0	0	0	2 (3%)	2 (3%)	7 (12%)	6 (10%)	7 (12%)	11 (19%)	23 (39%)	68.3
Firearms	0	0	0	2 (100%)	0	0	0	0	0	0	0	18.0
Head Trauma	0	0	0	0	0	1 (25%)	2 (50%)	0	0	1 (25%)	0	49.3
Medical Misad.	1 (17%)	0	0	0	0	1 (17%)	1 (17%)	1 (17%)	0	1 (17%)	1 (17%)	46.8
Smoke/CO Inhal.	1 (14%)	0	0	0	0	1 (14%)	2 (29%)	2 (29%)	0	1 (14%)	0	44.4
Drug Reactions	0	0	0	0	0	0	0	2 (67%)	1 (33%)	0	0	58.7
Other	2 (25%)	0	0	0	0	0	1 (12%)	3 (38%)	1 (12%)	1 (12%)	0	45.6
TOTALS	9	1	0	7	26	59	88	36	19	20	31	
% OF TOTAL	3%	0.3%	0	2%	9%	20%	30%	12%	6%	7%	10%	

* Row percents refer to percentage by age range for each mode. These can be compared to total percentages for each age range to see if a mode is more or less prevalent in an age group. For example, aspiration occurred more frequently in the 0-5 years of age group (24%) than the general involvement of this age group in accidents (3%) while falls in the 30-39 year age group occurred less frequently (3%) than all accidents in this age group (20%). Falls and burns in the age group 60-80+ occurred more frequently (70% and 42% respectively) than all accidents in this age group (23%).

TABLE XIV. ACCIDENTAL DEATH SITUATIONS BY SEX

	Sex	
	Male	Female
Method		
Asphyxia	1 (50%)*	1 (50%)
Aspiration	11 (65%)	6 (35%)
Burns	5 (71%)	2 (29%)
Drowning	2 (33%)	4 (67%)
Drug/Alcohol Abuse Related	2 (40%)	3 (60%)
Drug O.D.	136 (80%)	33 (20%)
Drug Reactions	2 (67%)	1 (33%)
Hanging	1(100%)	0 (0%)
Falls	36 (61%)	23 (39%)
Firearms	2(100%)	0 (0%)
Head Trauma	3 (75%)	1 (25%)
Medical Misadven.	1 (17%)	5 (83%)
Smoke/CO Inhal.	6 (86%)	1 (14%)
Other	5 (63%)	3 (37%)
TOTALS	213	83
% OF TOTAL	72%	28%

* Row percents refer to percentages by sex for each mode. These can be compared to total percentages for each sex to see whether a mode is more or less prevalent in one sex. For example, deaths from falls appear to occur slightly less frequently in males (61%) than the general involvement of males in accidents (72%), while deaths from drug overdoses occur less frequently in females (20%) than all accidents in females (28%).

VEHICULAR DEATHS

In 1994-95, there were 80 vehicular fatalities in San Francisco, an increase of 26 (48%) from 1993-1994! The number of such fatalities by type are indicated in Figure 15, page 36 and Table XV, page 37. Percentages of all vehicular fatalities by type are shown in Table XV, page 37. The largest number of vehicular fatalities involved pedestrians; the second largest number involved automobile drivers. Automobile driver fatalities increased from 9 in 1993-94 to 19 in 1994-95, a more than two fold increase. Motorcycle driver fatalities remained the same (6) in 1994-95 as in 1993-94. Pedestrian fatalities increased from 29 in 1993-94 to 36 in 1994-95.

Of the vehicular fatalities tested for alcohol (i.e. those in the hospital for less than 24 hours), bicycle drivers had the highest average blood ethyl alcohol concentration (0.27%). Among pedestrian, only white non-Hispanic males tested positive for ethyl alcohol, 67% of this group.

Abuse Drug Involvement (Table XVI, page 37)

Cocaine and Amphetamines were the abuse drugs seen most frequently in vehicular fatalities (seen 2 times each). The number of times abuse drugs were found in vehicular fatalities was 5 during 1993-94, and 10 in 1991-92.

Age Distribution (Table XVII, p. 38, Table XVIII, p. 39, and Figure 16, p. 38)

The average age of motorcycle drivers was 26.7 years as compared to the average age of auto drivers (47.1 years) who were vehicular fatalities during 1994-95. The mean age of pedestrians (58.2) was the highest seen for any type of traffic fatality with the 50+ year age group being overrepresented in the pedestrian fatalities (67%) as compared to the overall involvement of this age group in all types of traffic fatalities (47%).

Distribution by Sex (Table XVIII, page 39)

Overall, Males were the predominant victims of vehicular fatalities (58%)

Racial Distribution (Table XVIII and Figure 17, page 39)

Overall, vehicular fatalities occur most frequently in whites (50%). Asians were represented more heavily among deaths of pedestrians (42%) than would be expected by their involvement in all vehicular fatalities (29%). Blacks were most heavily represented among auto passenger fatalities (30%) during 1994-95.

VEHICULAR DEATHS

In San Francisco, there were 80 vehicle-related fatalities (73 accidents, 6 homicides and 1 suicide) accounting for 5% of the Medical Examiner death investigations for the fiscal year 1994-95.

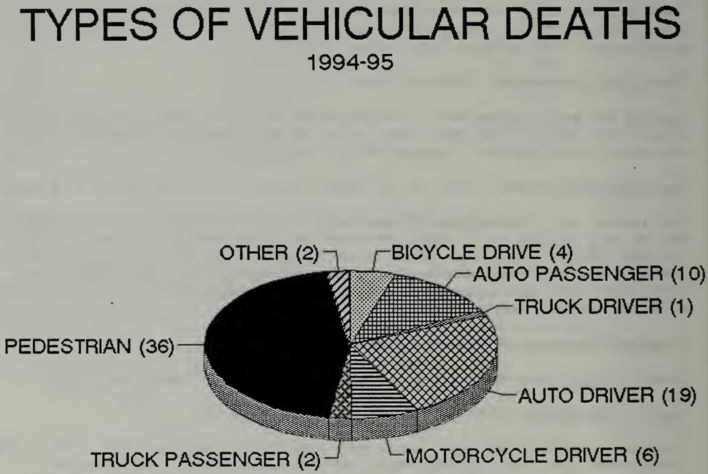


Figure 15.

TABLE XV. VEHICULAR FATALITIES IN 1994-1995

Drug and Alcohol Involvement

METHOD	NO.	% WITH ALCOHOL*	AVE. ALC. CONC. (g%)	% WITH DRUGS*	% WITH DRUGS+ALC
PEDESTRIAN	36 (45%)	21	0.22	5	5
AUTO DRIVER	19 (24%)	18	0.16	10	0
AUTO PASSENGER	10 (12%)	22	0.10	17	0
MOTORCYCLE DRIVER	6 (8%)	67	0.08	20	0
BICYCLE DRIVER	4 (5%)	25	0.27	0	0
TRUCK DRIVER	1 (1%)	-	-	-	-
TRUCK PASSENGER	2 (2%)	50	0.04	0	0
OTHER	2 (2%)	0	-	-	-

* Refers to percentages of victims (of those tested) with positive blood ethyl alcohol levels.

** Refers to percentage of victims (of those tested) with positive blood tests for abuse drugs.

TABLE XVI. ABUSE DRUGS PRESENT IN VEHICULAR FATALITIES

	Drugs			
	Cocaine	PCP	Heroin	Amphetamines
Situation				
PEDESTRIAN	1	0	0	0
AUTO DRIVER	1	0	0	0
AUTO PASSENGER	0	0	0	1
MOTORCYCLE DRIVER	0	0	0	1
BICYCLE DRIVER	0	0	0	0
TRUCK DRIVER	0	0	0	0
TRUCK PASSENGER	0	0	0	0
OTHER	0	0	0	0
TOTALS	2	0	0	2

TABLE XVII. VEHICULAR FATALITIES BY AGE

	Age										
Situation	0-5	6-12	13-16	17-19	20-29	30-39	40-49	50-59	60-69	70-79	80+
AUTO DRIVER	0	0	0	2 (11%)	3 (16%)	2 (11%)	5 (26%)	2 (11%)	1 (5%)	2 (11%)	2 (11%)
AUTO PASSENGER	0	0	0	1 (10%)	2 (20%)	2 (20%)	0	0	2 (20%)	1 (10%)	2 (20%)
MOTORCYCLE DRIVER	0	0	0	0	5 (83%)	1 (17%)	0	0	0	0	0
PEDESTRIAN	0	0	0	0	3 (8%)	2 (6%)	7 (19%)	6 (17%)	9 (25%)	5 (14%)	4 (11%)
BICYCLE DRIVER	0	0	0	0	1 (25%)	2 (50%)	0	1 (25%)	0	0	0
TRUCK DRIVER	0	0	0	0	0	0	1 (100%)	0	0	0	0
TRUCK PASSENGER	0	0	0	0	0	2 (100%)	0	0	0	0	0
OTHER	0	0	0	0	0	0	1 (50%)	0	0	1 (50%)	0
TOTALS	0	0	0	3	14	11	14	9	12	9	8
% of total	(0%)	(0%)	(0%)	(4%)	(18%)	(14%)	(18%)	(11%)	(15%)	(11%)	(10%)

* Row percents refer to percentages by age group for each situation. These can be compared to total percentages for each age group to see if a situation is more or less prevalent in any age group. For example, accidental deaths of automobile DRIVERS in the 17-19 year age group occur more frequently (11%) than the general involvement of this age group in vehicular fatalities (4%). Deaths of pedestrians in the 20-29 year age group occur less frequently (8%) than all vehicular fatalities in this age group (18%) while such deaths in the 60+ year age group occur more frequently (50%) than the general involvement of this group in vehicular fatalities (36%).

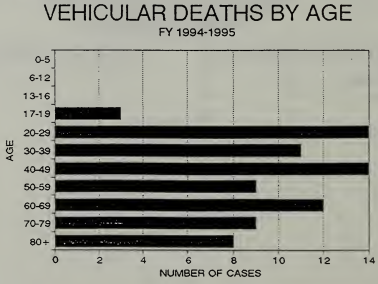


Figure 16.

TABLE XVIII. DEMOGRAPHICS OF VEHICULAR FATALITIES

	Sex		Race					Age
Situation	%M	%F	%W-NH	%W-H	%B-NH	%A	%O	AVE. AGE
AUTO DRIVER	68	32	63	5	16	16	0	47
AUTO PASSENGER	30	70	40	10	30	20	0	50
MOTORCYCLE DRIVER	67	33	67	0	0	17	17	27
PEDESTRIAN	58	42	44	6	6	42	3	58
BICYCLE DRIVER	100	0	25	0	25	50	0	49
TRUCK DRIVER	100	0	100	0	0	0	0	44
TRUCK PASSENGER	0	100	0	100	0	0	0	37
OTHER	0	100	100	0	0	0	0	58
AVERAGE	58	42	50	8	11	29	2	51

The most notable change in demographics of vehicular fatalities from fiscal year 1993-94 was an increase in the percentage of pedestrians who were Asian, from 17% in 1993-94 to 42% in 1994-95 and a concomitant decrease in the percentage of pedestrians who were black, from 34% in 1993-94 to 6% in 1994-95.

RACE OF VEHICULAR DEATH VICTIMS
FY 1994-95

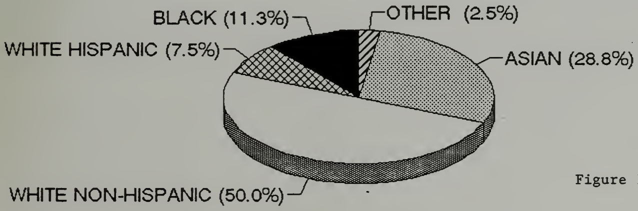


Figure 17.

SUICIDES

The determination of suicide as a manner of death represents the summation of scene investigation, including a review of psychological state, autopsy, pathology, toxicology and, frequently, other investigation. To the best of our knowledge, ours is the only Medical Examiner's Office routinely performing toxicology testing on multiple organs and/or body fluids in order to evaluate the metabolic status of a drug or drugs.

Realizing the immense emotional impact on family, the diagnosis of suicide is never made lightly, and always represents a decision made on the basis of data sufficient to defend that decision in a court of law, if necessary. Should these data be inconclusive, the victim automatically gets the benefit of the doubt.

Suicide takes a tremendous toll of our young people. The relative number jumping from the Golden Gate bridge would not seem to warrant the publicity assigned them as compared to the evident need for help for individuals using other methods.

To help understand the problem, and hopefully, to aid in reduction of suicides, this office has supported suicide prevention and research programs for many years. It is hoped that this work will help to reduce this needless loss.

The majority of these deaths are situational reactions, and, if given momentary trained support, are potentially preventable.

SUICIDAL DEATHS

One hundred and twenty-five deaths were ruled to have been due to suicide during the 1994-95 fiscal year. Of these 1 was a vehicular death and is discussed in the ``Vehicular Deaths'' Section. The other suicide deaths are the basis for the tabulations in this Section. The number of individuals dying by each method of suicide are presented in Figure 18, page 43, and Table XIX, page 44, and the percentages of all suicidal deaths by type are indicated in Table XIX, page 44, along with alcohol and drug involvement for each mode.

Abuse Drug Involvement (Table XX, page 44)

Abuse drugs were present 15 times in suicidal deaths in 1994-95 as compared to 29 times in 1993-94. The abuse drugs seen most frequently in suicidal deaths were cocaine (4 times) and amphetamines (6 times). This contrasts with 14 cases of suicide with amphetamines present in 1993-94. Heroin (measured as morphine) was found in 5 cases of suicidal death in 1994-95. Abuse drugs were associated more frequently with deaths caused by drug overdose (7 times) than with any other mode of suicide. Abuse drugs may have played a role in suicidal deaths by cutting/stabbing (60% of cases).

Racial Distribution (Table XXI and Figure 19, page 45)

Deaths from suicide occurred most frequently in whites (77% of total suicides). The white racial group has been divided into Hispanic and non-Hispanic in this tabulation. It can be seen that the white Hispanic group was involved in only 4% of all suicides but in 11% of all suicides by hanging. Suicide by firearms was used more frequently by blacks (13%) than would have been expected by the overall percentage of suicides by blacks (6%).

Age Distribution (Table XXII, p. 46, Table XXIII, p. 47 and Figure 20, p. 47)

There was 1 death by suicide in the 13-16 year age group during this fiscal year, the same as in 1993-94. There were 2 suicides in the 17-19 year age group as compared to 4 in 1993-94 and 2 in 1992-93. There was a large decrease (from 30 to 18) in the number of suicides in the 20-29 year age group. The 30-39 year age group has the highest percentage of suicides of any age group with deaths from drug overdoses being particularly prevalent in this age group. Death by firearms and by jumps from buildings appear to be the modes of suicide used most frequently by older adults with 62% of the deaths of those over age 60 being due to these modes.

Distribution by Sex (Table XXIV, page 48)

Males were more likely than females to commit suicide in 1994-95 (70% male, 30% female).

SUICIDES

Suicides are self-inflicted deaths. In San Francisco, the 124 suicides which are being tabulated account for 8.0% of the Medical Examiner death investigations for the fiscal year of 1994-95.

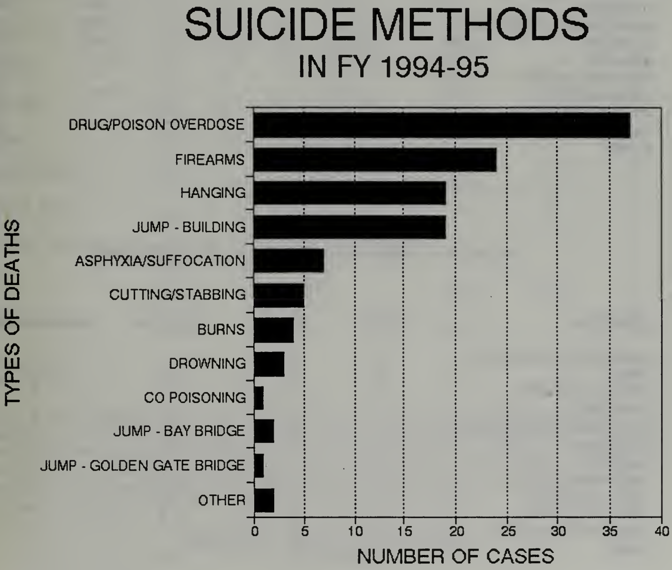


Figure 18.

TABLE XIX. SUICIDAL DEATHS BY MODE

Abuse Drug and Alcohol Involvement

METHOD	NUMBER	% OF TOTAL SUICIDES	% WITH ALCOHOL	AVERAGE ALCOHOL CONC.(g%)	% WITH ABUSE DRUGS
ASPHYXIA/SUFFOCATION	7	5.6	57	0.14%	0
BURNS	4	3.2	0	-	0
CUTTING/STABBING	5	4.0	0	-	60
DROWNING	3	2.4	33	0.10%	50
DRUG/POISON OVERDOSE	37	29.8	31	0.09%	21
FIREARMS	24	19.4	50	0.09%	5
HANGING	19	15.3	26	0.13%	13
JUMP-BAY BRIDGE	2	1.6	0	-	0
JUMP-BUILDING	19	15.3	21	0.23%	7
JUMP-GG BRIDGE	1	0.8	0	-	0
SMOKE/CO POISONING	1	0.8	0	-	0
OTHER	2	1.6	0	-	0

TABLE XX. ABUSE DRUGS PRESENT IN SUICIDAL DEATHS

	Drugs			
SITUATION	Cocaine	PCP	Morphine	Amphetamines
ASPHYXIA/SUFFOCATION	0	0	0	0
BURNS	0	0	0	0
CUTTING/STABBING	2	0	1	1
DROWNING	0	0	0	1
DRUG/POISON OVERDOSE	2	0	4	1
FIREARMS	0	0	0	1
HANGING	0	0	0	1
JUMP-BAY BRIDGE	0	0	0	0
JUMP-BUILDING	0	0	0	1
JUMP-GG BRIDGE	0	0	0	0
SMOKE/CO POISONING	0	0	0	0
OTHER	0	0	0	0
TOTALS	4	0	5	6

TABLE XXI. SUICIDE METHODS BY RACE

	Race					
Method	W-NH	W-H	B-NH	Asian	Other	Total
Asphyxia/Suffoc.	7 (100%)	0	0	0	0	7
Smoke/CO Poisoning	1 (100%)	0	0	0	0	1
Cutting/Stabbing	5 (100%)	0	0	0	0	5
Drug/Poison OD	27 (73%)	2 (5%)	4 (11%)	4 (11%)	0	37
Drowning	2 (67%)	0	0	1 (33%)	0	3
Firearms	18 (75%)	0	3 (13%)	3 (13%)	0	24
Hanging	10 (53%)	2 (11%)	1 (5%)	6 (32%)	0	19
Jump-Building	14 (74%)	1 (5%)	0	4 (21%)	0	19
Jump-GG Brdg	1 (100%)	0	0	0	0	1
Jump-Bay Bridge	2 (100%)	0	0	0	0	2
Burns	2 (50%)	0	0	1 (25%)	1 (25%)	4
Other	1 (50%)	0	0	1 (50%)	0	2
TOTALS (NO.)	90	5	8	20	1	124
% OF TOTALS	73%	4%	6%	16%	1%	

* Row percentages refer to percentages by race for each method. These can be compared to total percentages for each race to see whether a method is more or less prevalent in a racial group. For instance, suicides by hanging appear to occur more frequently in Asians (32%) than the general involvement of Asians in suicides (16%), and deaths by hanging in white non-Hispanics (53%) occur less frequently than all suicides in white non-Hispanics (73%).

RACE OF SUICIDE VICTIMS

FY 1994-95

Figure 19.

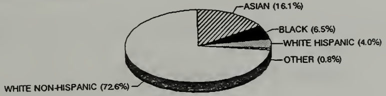


TABLE XXII. SUICIDE METHODS BY AGE

	Age									
Method	13-16	17-19	20-29	30-39	40-49	50-59	60-69	70-79	80-89	90+
Asphyxia/Suffoc.	0	0	0	1 (14%)	3 (43%)	3 (43%)	0	0	0	0
CO Poisoning	0	0	0	0	1 (100%)	0	0	0	0	0
Cutting/Stabbing	0	0	1 (20%)	1 (20%)	2 (40%)	0	0	1 (20%)	0	0
Drowning	0	0	1 (33%)	0	2 (67%)	0	0	0	0	0
Drug/Poison O.D.	0	0	2 (5%)	12 (32%)	10 (27%)	9 (24%)	2 (5%)	0	1 (3%)	1 (3%)
Firearms	1 (4%)	0	6 (25%)	4 (17%)	2 (8%)	2 (8%)	4 (17%)	3 (13%)	2 (8%)	0
Hanging	0	1 (5%)	5 (26%)	5 (26%)	2 (11%)	0	1 (5%)	4 (21%)	1 (5%)	0
Jump-Building	0	1 (5%)	3 (16%)	3 (16%)	1 (5%)	2 (11%)	4 (21%)	1 (5%)	3 (16%)	1 (5%)
Jump-GG Bridge	0	0	0	0	0	1 (100%)	0	0	0	0
Jump-Bay Bridge	0	0	0	1 (50%)	1 (50%)	0	0	0	0	0
Burns	0	0	0	1 (25%)	2 (50%)	1 (25%)	0	0	0	0
Other	0	0	0	1 (50%)	1 (50%)	0	0	0	0	0
TOTAL NO.	1	2	18	29	27	18	11	9	7	2
% OF TOTAL	1%	2%	15%	24%	22%	15%	9%	7%	6%	2%

* Row percents refer to percentage by age range for each method. These can be compared to total percentages for each age range to see if a method is more or less prevalent in an age group. For example, hanging appears to occur more frequently in the 70-79 years of age group (21%) than the general involvement of this age group in suicides (7%) while deaths by firearms in the 60-69 year age group (17%) occur more frequently than all suicides in this age group (9%).

SUICIDES

TABLE XXIII. AGE RANGES - COMPARISON BY YEAR

Age Range	'87-'88	'88-'89	'89-'90	'90-'91	'91-'92	'92-'93	'93-'94	`94-'95
0 - 19	6	3	1	2	6	2	5	3
20 - 29	36	30	18	20	28	14	30	18
30 - 39	28	33	39	37	34	32	31	29
40 - 49	24	28	30	23	30	36	20	27
50 - 59	23	22	12	29	14	13	23	18
60 - 69	19	19	11	15	12	12	12	11
70 - 79	17	21	6	19	17	14	7	9
80 - 89	5	11	7	8	9	8	7	7
90 - 99	4	3	4	1	3	1	1	2
Unknown	0	1	0	0	0	0	0	0

SUICIDE VICTIMS BY AGE

Figure 20. FY 1994-95

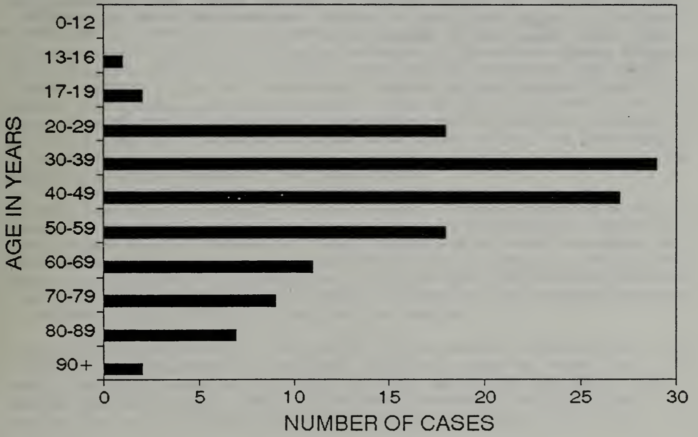


TABLE XXIV. SUICIDE METHODS BY SEX

	Sex	
Method	Male	Female
Asphyxia/Suffocation	6 (86%)	1 (14%)
Burns	2 (50%)	2 (50%)
Cutting/Stabbing	4 (80%)	1 (20%)
Drowning	2 (67%)	1 (33%)
Drug/Poison Overdose	26 (70%)	11 (30%)
Firearms	22 (92%)	2 (8%)
Hanging	10 (53%)	9 (47%)
Jump-Bay Bridge	0 (0%)	2 (100%)
Jump-Building	11 (58%)	8 (42%)
Jump-GG Bridge	1 (100%)	0 (0%)
Smoke/CO Poisoning	1 (100%)	0 (0%)
Other	2 (100%)	0 (0%)
TOTALS	87 (70%)	37 (30%)

* Row percents refer to percentages by sex for each mode. These can be compared to total percentages for each sex to see whether a mode is more or less prevalent in one sex. For example, deaths by firearms appear to occur more frequently in males (92%) than the general involvement of males in suicides (70%), while females die by hanging more frequently (47%) than all suicides in females (30%).

HOMICIDE

Homicide is the killing of one human being by another. Murder is the unlawful killing of a human being with malice. The following data do not differentiate homicide as to whether it was justifiable, accidental, or murder. Such distinctions are the proper function of the judicial system and are not the responsibility or function of this office.

Any judicial system which deals with crimes involving death requires a well-trained staff and well-equipped Medical Examiner's Office which can and will interpret forensic findings in an unbiased, fair manner. Their investigation must be intense, accurate and rapid enough so that charges may be pursued or dismissed without unfairly affecting an individual's constitutional rights. This is the purpose of this office.

The proper evaluation and investigation of a homicide begins, naturally, at the scene. In the majority of cases, a staff member of this office (either the Investigator, Administrative Coroner, or Medical Examiner), determines whether a death is potentially a homicide. It has been well-documented that, if such a determination is made by an individual inexperienced or untrained in death investigation, his opinion will be wrong in 50% of the cases. Such a person is very apt to miss the subtle homicide and is more inclined to miscall a natural or accidental death as homicide, resulting in false arrest, false accusations, needless expenditure of public funds, waste of investigative time and delay in the investigation of other deaths.

The Investigator responds to the scene of death and determines whether the Police Homicide Detail will be called. When homicide is obvious, the Investigator responds as part of a team (other members include homicide investigators, photographers and criminologists). This office is responsible for the body, identification, inquiry into circumstances, manner and means of death (Gov. Code 27491.2). In addition to the scene investigation, the Investigator is responsible for recovering property, locating and notifying next of kin, and preparing a written summary of his investigation.

In about one-third to one-half of all homicides, a forensic pathologist will respond to the scene and aid in the investigation. The subsequent autopsy may also use photography, fluoroscopy, X-ray, angiography and other techniques to establish and define the number, nature and severity of wounds, to obtain evidence (i.e. bullets) and to prepare an official report. This report, including chemistry, serology and toxicology results, is used as part of the prosecution or defense of the case in the formal judicial hearing.

Pertaining to criminal trial, our judicial system requires identification of an individual and presentation of evidence, usually by virtue of expert testimony, relative to the cause of death or trauma associated with death. The Medical Examiner's Office identifies the body, frequently relying on local police, CII, or FBI fingerprints. Expert forensic testimony is given by

the Forensic Pathologist from this office. In addition, the Forensic Toxicologist is frequently called upon to testify on the significance and effect of various drug levels, a matter of great importance when dealing with the concept of diminished capacity.

Of minor, but increasing importance, is the fact we are seeing more homicide and trauma cases transferred into the County for medical therapy because of San Francisco's excellent and advanced medical facilities. Should these individuals die, the autopsy and court testimony are done by this office.

HOMICIDE DEATHS

One hundred deaths were ruled to have been due to homicide during the 1994-95 fiscal year. Of these, 6 were vehicular homicides and have been discussed in the "Vehicular Deaths" section. The remaining 94 homicide deaths are the basis for the tabulations in this section. The numbers of individuals dying by each manner of death are indicated in Figure 21, page 52 and Table XXV, page 53; percentages of all homicides represented by specific methods are indicated in Table XXV, page 53. The total number of non-vehicular homicides decreased by 20% from 118 in 1993-94 to 94 in 1994-95. The number of homicide deaths by firearms decreased 18%, from 83 to 68. Of the homicide victims tested for alcohol and drugs (those in the hospital for less than 24 hours), about 31% had positive blood alcohol levels; more than 33% had drugs present. The percent of homicide victims with positive blood tests for drugs varied with the method of homicide with 38% of those dying either by firearms or stabbing having drugs present.

Abuse Drug Involvement (Table XXVI, page 53)

Cocaine was the abuse drug seen most frequently in homicide victims, being present in 29 homicide cases as compared to 35 such cases in 1993-94. Cocaine was associated most strongly with deaths by gunshot wound, with 23 of the 29 cases with cocaine present (79%) being deaths due to gunshot wounds. Stabbing was the homicide method which was associated with drugs next most frequently; cocaine was present in 5 cases who died by stabbing.

Racial Distribution (Table XXVII and Figure 22, page 54)

Deaths by homicide occurred more frequently in blacks (46%) than in whites (34%). Deaths by stabbing occurred less frequently in white Hispanics (7%) than would have been predicted by the overall involvement of white Hispanics in homicides (14%). Most deaths resulting from firearms (51%) occurred in blacks.

Age Distribution (Fig. 23, p. 55, Tables XVIII and XXIX, p. 56 and Table XXXI, p. 57)

There were 18 homicides in the 0-19 year age group, an increase of 64% from 1993-94! Death by firearms accounted for 13 or 72% of these homicides. The peak occurrence of deaths due to firearms was in the 20-29 year age group. Of deaths due to firearms, 69% were in the 20-39 year age group as were 57% of the stabbing deaths. As can be seen from Table XXXI, the mean age of homicide victims varies with the mode, with no clear pattern observed for both males and females for any mode. It is interesting to note (See Table XXIX) that the number of homicide victims aged 70+ has decreased from 15 in '85-'86 to 0 in '94-'95.

Distribution by Sex (Table XXX, page 57)

Males were more than 6 times as likely to be homicide victims as females.

NON-VEHICULAR HOMICIDES

Homicides are those deaths caused by another person, generally resulting in murder and manslaughter charges. In San Francisco, 94 non-vehicular homicides occurred in 1994-95, accounting for 6.1% of the total Medical Examiner investigations.

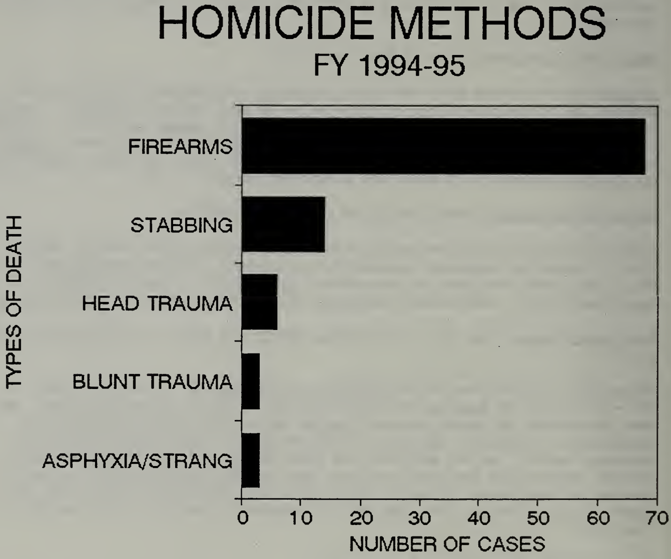


Figure 21.

TABLE XXV. HOMICIDAL DEATHS BY MODE

Abuse Drug and Alcohol Involvement

METHOD	NUMBER	% OF TOTAL HOMICIDES	% WITH ALCOHOL*	AVE. ALC. CONC.(g%)	% WITH DRUGS**
FIREARMS	68	72	30	0.12%	38
STABBING	14	15	31	0.22%	38
BLUNT TRAUMA	3	3	33	0.13%	0
ASPHYXIA/ STRANGULATION	3	3	33	0.22%	67
HEAD TRAUMA	6	6	0	-	25

* Refers to percentage of victims (of those tested) with positive blood ethyl alcohol concentrations

** Refers to percentage of victims (of those tested) with positive blood tests for abuse drugs.

TABLE XXVI. DRUGS PRESENT IN NON-VEHICULAR HOMICIDAL DEATHS

	Drugs			
Situation	Cocaine	PCP	Heroin	Amphetamines
ASPHYXIA/STRANGULATION	0	0	1	0
TRAUMATIC INJURIES	0	0	0	0
GUNSHOT WOUND	23	1	5	2
STABBING	5	0	1	1
SMOKE INHALATION	0	0	0	0
HEAD TRAUMA	1	0	1	0
TOTALS	29	1	8	3

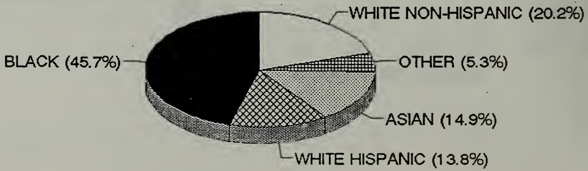
TABLE XXVII. HOMICIDE METHODS BY RACE

Method	Race W-NH	 W-H	 B-NH	 Asian	 Other	Total
Asphyxia/Strang.	2 (66%)	0	0	1 (33%)	0	3
Head Trauma	3 (50%)	0	1 (17%)	2 (33%)	0	6
Firearms	9 (13%)	11 (16%)	35 (51%)	9 (13%)	4 (6%)	68
Stabbing	4 (29%)	1 (7%)	6 (43%)	2 (14%)	1 (7%)	14
Blunt Trauma	1 (33%)	1 (33%)	1 (33%)	0	0	3
TOTALS	19	13	43	14	5	94
% OF TOTAL	20%	14%	46%	15%	5%	

* Row percentages refer to percentages by race for each method. These can be compared to total percentages for each race to see whether a method is more or less prevalent in a racial group. For instance, death by strangulation appears to occur more frequently in white non-Hispanics (66%) than the general involvement of white non-Hispanics in homicides (20%) while deaths due to head trauma appear to occur less frequently in blacks (17%) than all homicides in blacks (46%).

RACE OF HOMICIDE VICTIMS
FY 1994-95

Figure 22.



HOMICIDE VICTIMS BY AGE

FY 1994-95

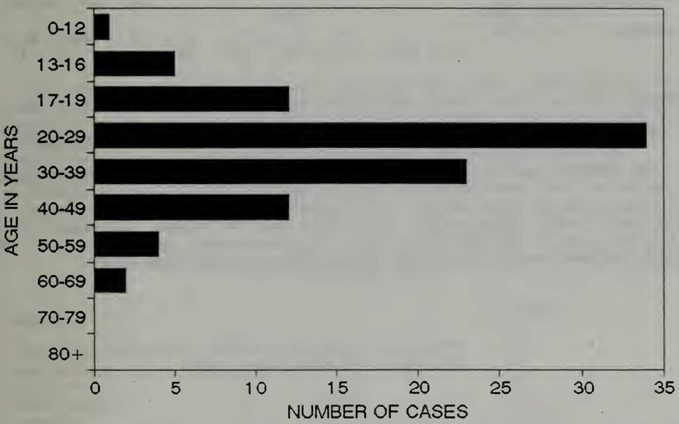


Figure 23.

TABLE XXVIII. HOMICIDE METHODS BY AGE

Method	0-12	13-16	17-19	20-29	30-39	40-49	50-59	60-69	70-79	80+	Unknown
	Age										
Asphyxia/ Strang.	0	1 (33%)	0	0	1 (33%)	1 (33%)	0	0	0	0	0
Head Trauma	0	0	1 (17%)	2 (33%)	0	2 (33%)	1 (17%)	0	0	0	0
Firearms	0	3 (4%)	10 (15%)	29 (43%)	18 (26%)	6 (9%)	1 (1%)	1 (1%)	0	0	0
Blunt Trauma	1 (33%)	1 (33%)	0	0	0	1 (33%)	0	0	0	0	0
Stabbing	0	0	1 (7%)	3 (21%)	4 (29%)	2 (14%)	2 (14%)	1 (7%)	0	0	1 (7%)
TOTALS	1	5	12	34	23	12	4	2	0	0	1
% OF TOTALS	(1%)	(5%)	(13%)	(36%)	(24%)	(13%)	(4%)	(2%)	(0%)	(0%)	(1%)

* Row percents refer to percentage by age range for each method. These can be compared to total percentages for each age range to see if a method is more or less prevalent in an age group. For example, deaths by firearms occur more frequently in the 20-29 year age group (43%) than the general involvement of this age group in homicides (36%) while such deaths occur less frequently in the 40-49 year age group (9%) than all homicides in this age group (13%).

TABLE XXIX. HOMICIDE VICTIMS
AGE RANGES - COMPARISON BY YEAR

	Year							
Age range	'87-'88	'88-'89	'89-'90	'90-'91	'91-'92	'92-'93	'93-'94	`95-'95
0 - 19	16	18	16	13	19	16	11	18
20 - 29	28	31	28	37	39	49	53	34
30 - 39	41	28	28	27	32	25	26	23
40 - 49	12	15	15	12	17	14	12	12
50 - 59	13	9	6	5	10	13	8	4
60 - 69	8	4	5	5	0	3	4	2
70 +	5	2	6	5	6	7	4	0

TABLE XXX. HOMICIDE METHODS BY SEX

Method	Sex Male	 Female
Asphyxia/Strangulation	0 (0%)	3 (100%)
Head Trauma	5 (83%)	1 (17%)
Firearms	61 (90%)	7 (10%)
Blunt Injuries	3 (100%)	0 (0%)
Stabbing	12 (86%)	2 (14%)
TOTALS	81	13
% OF TOTALS	(86%)	(14%)

* Row percents refer to percentages by sex for each mode. These can be compared to total percentages for each sex to see whether a mode is more or less prevalent in one sex. For example, deaths from firearms occur less frequently in females (10%) than the general involvement of females in homicides (14%), while deaths from firearms in males (90%) occur more frequently than all homicides in males (86%).

TABLE XXXI. MEAN AGE FOR HOMICIDE VICTIMS BY METHOD AND SEX
(Age in Years)

Method	Male	Female
Asphyxia/Strangulation	-	32
Head Trauma	35	45
Firearms	28	29
Blunt Trauma	18	-
Stabbing	38	35

The lowest mean age for males was seen in deaths from blunt trauma. The lowest mean age for females was seen in death by firearms.

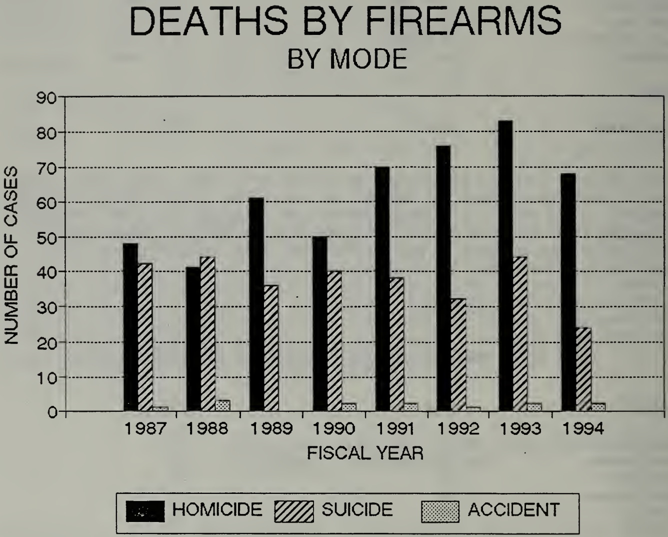

DEATHS BY FIREARMS
BY MODE
NUMBER OF CASES
0
10
20
30
40
50
60
70
80
90
1987
1988
1989
1990
1991
1992
1993
1994
FISCAL YEAR
HOMICIDE
SUICIDE
ACCIDENT

Figure 24.

PATHOLOGY

In the Pathology Department, tissue and body fluid samples taken at autopsy are prepared for microscopic study, histochemically stained, or analyzed for chemical constituents. Cardiac pacemakers or other mechanical life-support devices are examined for any defect. Smears or "wet-mounts" are examined for spermatozoa, bacteria, or tuberculosis. Bacteriologic cultures may be taken. However, if pathogens are grown, they are usually sent to the Department of Public Health (State or local) for further identification. If indicated, "soft" X-rays or histochemical tests are done to establish entrance or exit gunshot wounds. New research techniques, such as methods of obtaining fingerprints from the skin of a victim, are developed here also.

MONTHLY FIGURES

1994-1995

PATHOLOGY*

YEAR	TOTAL MED-EXAM CASES	CASES REFERRED TO PATHOLOGIST	NO. OF ORGANS SUBMITTED	NO. OF SECTIONS TAKEN	HISTO PATHOLOGIC SLIDES MADE	SPECIAL STAINS **	BLOOD TYPINGS ***
1994							
JUL	113	66	403	655	234	16	13
AUG	115	85	454	850	382	114	29
SEP	120	79	443	1000	424	56	15
OCT	134	94	630	1415	555	89	17
NOV	116	73	446	943	338	80	12
DEC	126	83	464	954	357	88	9
1995							
JAN	151	83	444	795	338	50	16
FEB	146	93	414	779	342	20	9
MAR	137	106	457	870	373	57	10
APR	122	62	462	774	421	63	12
MAY	134	92	469	1057	474	73	13
JUN	135	82	477	1010	409	70	8
TOTALS	1549	998	5563	11,102	4647	776	163

* These figures do not reflect photography, forensic radiology, material prepared for teaching forensic pathology

** Includes smears examined for bacteria and spermatozoa

*** ABO and Anti-Rh typing + blood drawings

**** Blood, urine, water, evidence for: hematology, biochemistry, urinalysis, bacteriology, serology, "Sickledix," etc. + blood drawing

TOXICOLOGY

Toxicology is the study of the interaction of foreign compounds, such as drugs, with living organisms (e.g. people). It involves knowing something of the nature of that interaction, how the foreign compounds break down (that is, how they are metabolized), and what effects they have on the health and behavior of the organism.

All of this information is vital to the role that toxicology plays in determining the cause of death, as well as in evaluating the significance of chemicals found in the living.

Generated within the Toxicology Department is information on samples from Medical Examiner's cases as well as from suspects in criminal cases (e.g.. homicides, driving under the influence, probation failure, (H & S 11550), assaults) and other persons to be tested at the request of various law enforcement agencies. The data obtained in these cases enable the toxicologist to assist in interpreting the behavior of the suspects involved, to advise the District Attorney, the Public Defender, the City Attorney, Police Department, the California Highway Patrol, and other agencies, and to give expert testimony in court as necessary in such cases as to the effect of drugs in the case. This application of toxicological facts to legal problems is Forensic Toxicology.

The Toxicology Department also performs analyses on samples submitted by the Police and Fire Departments in connection with the recruitment programs and other personnel requirements. The results in some cases are presented to the respective commission in official hearings.

Toxicological facts are determined through tests performed on biological samples (e.g. blood, urine, gastric contents, liver, etc.) taken at the time of autopsy or from living persons. The samples are subjected to a series of chemical manipulations designed to extract any drugs or other physiologically active compounds that may be present. The subsequent extracts are then examined by equipment set up to detect, accurately identify, and quantitate any materials that may be present. These determinations must be of unquestionable accuracy and as specific as scientifically possible, and they must be able to stand up to review by any other qualified laboratory in the nation.

The analytical methods most commonly used in the toxicological studies are gas and thin layer chromatography; ultraviolet, visible, and fluorescence spectrophotometry; and immunoassay techniques. Advanced techniques, such as mass spectrometry and HPLC (High Performance Liquid Chromatography) are used as necessary for confirmation of difficult samples. These precise and sophisticated methods require the use of advanced laboratory apparatus and highly trained personnel.

Levels of drugs in two or more body compartments (one of which is invariably blood) are routinely determined in order to answer the question of whether the drug use is acute or chronic. This approach is of the utmost importance in determining the time of ingestion and whether or not the intent of the ingestion was suicide.

The range of drugs available to the public is extremely wide, and the nature and type of compounds involved are highly variable. The methodologies necessary to conduct toxicological analyses have to be similarly wide-ranging and also continually expanded in order to keep up with the manufacture of new drugs, both legal and illegal. This is an important aspect of the Toxicology Department's work, often requiring extensive research. So, too, does the identification of "street-manufactured" compounds which are sometimes found in post-mortem samples. Also, with many drugs being compounded to have physiologic effects at very low doses, detection in body fluids is often extremely difficult.

The most common drugs in the community are alcohol and prescription items. However, illegal, or "street", drugs (especially morphine-type alkaloids [e.g. heroin], cocaine, and amphetamines) represent a very significant percentage of the compounds actually found in the cases presented to the Toxicology Department. Less commonly used drugs, industrial materials, certain gases, and various other foreign compounds have also been detected.

TOXICOLOGY
MEDICAL EXAMINER - CORONER'S CASES

SAN FRANCISCO CITY AND COUNTY
July 1994 - June 1995

Incidence of drugs and other physiologically active material detected

The compounds listed are not necessarily the cause of death nor even a contributi factor. They are the toxic agents that were found to be present, either singly o combination, in Medical Examiner's cases.

ABUSE DRUGS

Cocaine	143
Benzoylecgonine	153*
Morphine-type alkaloids	179
Codeine	86
Methamphetamine	67
Amphetamine	62
Phencyclidine (PCP)	2

ANTI-DEPRESSANTS

Amitriptyline (Elavil)	26
Nortriptyline (Aventyl)	28
Desipramine (Norpramin)	2
Imipramine (Tofranil)	0
Doxepin (Sinequan)	4
Fluoxetine (Prozac)	12
Trazodone (Desyrel)	1
Sertraline (Zoloft)	6
Clomipramine (Anafranil)	0

*Benzoylecgonine is not a drug of abuse. It is a metabolite of cocaine and i generally present when cocaine is detected. In some cases, benzoylecgonine, but cocaine, was found which indicated that there had been some exposure to cocaine.

ANALGESICS - NARCOTIC

Methadone	27
Methadone Metabolite	24
Propoxyphene (Darvon)	10
Norpropoxyphene	11
Hydrocodone	21
Hydromorphone	1
Oxycodone	6
Fentanyl	1

ANALGESICS - NON-NARCOTIC

Acetaminophen	13
Salicylates	1

CARDIAC DRUGS

Lidocaine	59
Metoprolol	1

SEDATIVE-HYPNOTICS
Barbiturates

Secobarbital	6
Pentobarbital	2
Phenobarbital	5

ANTIHISTAMINES

Diphenhydramine (Benadryl)	39
Dozylamine	6
Promethazine (Phenergan)	6
Brompheneramine	1

DECONGESTANTS

Phenylpropanolamine	7

BRONCHODIALATORS

Ephedrine	9
Pseudoephedrine	1

Drugs Detected, Continued

ANTICONVULSANTS

Diphenylhydantoin (Dilantin)	5
Carbamazepine (Tegretol)	2

ANTIPSYCHOTIC AGENTS

Chlorpromazine (Thorazine)	0
Thioridazine (Mellaril)	1
Haloperidol (Haldol)	4

MISCELLANEOUS

Carbon Monoxide	15
Acetone	6
Quinine	2
Carisoprodol	2
Verapamil	2
Cyanide	3
Isopropyl alcohol	4
Ketamine	2
Pentothal	1

ANTI-ANXIETY AGENTS

Diazepam (Valium)	49
Nordiazepam	58
Chlordiazepoxide (Librium)	10
Temazepam (Restoril)	0
Alprazolam (Xanax)	3
N-Desalkylflurazepam	3
Hydroxyzine	1
Clonazepam (Klonopin)	0
Flurazepam (Dalmane)	2
Triazolam (Stelazine)	1
Meprobamate	6
Lorazepam	1
Midazolam	4

TOXICOLOGY CASES

July 1994 - June 1995

No. of Cases Referred for Testing

Year/ Months	Medical Examiner	Forensic Toxicology*	Total Cases	Total Tests Performed
1994				
JUL-SEPT	347	366	713	6536
OCT-DEC	375	505	880	7482
1995				
JAN-MAR	434	559	993	8110
APR-JUNE	390	718	1108	8478
TOTALS	1546	2148	3694	30,606

*Cases in which specimens were referred to the Medical Examiner's Toxicology Laboratory for forensic toxicological examination generally were criminal cases in which the presence of drugs was suspected either in the victim or suspect of the crime. DUI, 11550, management control, out-of-county and other miscellaneous cases are included in this tabulation.

ABUSE DRUGS

The role of abuse drugs in deaths during the 1994-95 fiscal year is presented in this section. The four abuse drugs most commonly seen in Medical Examiner's cases - cocaine, heroin, amphetamines and PCP - will be examined. The number of cases in which these drugs were found either alone or in combination with other abuse drugs are presented in Table XXXII, page 69. In drug caused deaths, heroin was the most frequently observed drug of abuse where drugs were present either alone or when drugs were present in combination.

Distribution by Sex (Table XXXIII, page 70)

In deaths caused by abuse drugs (DC = drug caused), where the drugs were present either singly or in combination, 67-100% of the deceased individuals were males, depending upon the abuse drug.

Distribution by Race (Table XXXIII, page 70)

White/Non-Hispanic (W-NH) - In drug-caused deaths where abuse drugs were present singly, the white non-Hispanic racial group predominated in deaths caused by heroin and amphetamines. In drug-caused deaths where abuse drugs were present in combination with other abuse drugs, the white non-Hispanic racial group predominated in deaths caused by all abuse drugs being studied.

Black/Non-Hispanic (B-NH) - In drug-caused deaths and drug-related deaths where abuse drugs were present singly, the black non-Hispanic racial group predominated only in deaths where cocaine was present (53% and 65%, respectively). Black/non-Hispanics were only minimally represented if at all in other categories of drug-caused and drug-related deaths.

White/Hispanic (W-H) - This racial group was most heavily represented in drug-caused deaths where heroin was present alone.

Distribution by Age (Table XXXIII, page 70)

The lowest age noted was a 15 year old with heroin present alone whose death was drug-related (DR). The lowest mean age was seen in drug-related deaths with amphetamines present alone (26.8 years) while the highest mean age was seen in drug-caused deaths with heroin present in combination with other drugs (40.1 years).

Alcohol Involvement (Table XXXIII, page 70)

The presence of alcohol in the blood of abuse drugs users was most often associated with deaths caused by heroin alone (70%) and was least associated with deaths due to cocaine alone (22%).

Deaths Involving Cocaine (Figure 25, p. 71 and Tables XXXIV and XXXV, p. 73)

Cocaine alone was the cause of death in 18 cases by overdose, the same number as in 1993-94. Cocaine alone was also present in 23 drug-related deaths (See Table XXXIV) including 6 ruled to be accidental, 1 ruled to be by suicide, 16 ruled to be by homicide, and 1 with mode undetermined. Notably, 17 of these 23 drug-related deaths (74%) were due to gunshot or stabbing.

Cocaine in combination with other drugs was the cause of death in 67 cases by overdose, a 7% decrease from 1993-94. Cocaine in combination was also present in 20 drug-related deaths (See Table XXXV) including 5 cases ruled to be accidental, 2 cases ruled to be by suicide, 12 cases ruled to be by homicide, and 2 with mode undetermined. Of these 20 deaths, 12 (60%) were due to gunshot or stabbing.

The number of deaths due to cocaine over the last 7 fiscal years is shown in Figure 25. It can be seen that the number of deaths due to cocaine decreased by 3 from 1993-94.

Deaths Involving Heroin (Figure 25, page 71 and Table XXXVI, page 76)

Heroin alone was the cause of death in 27 cases by overdose, a decrease of two cases from the preceding fiscal year. Heroin alone also was present in 1 drug-related death. The involvement of heroin alone in drug-related deaths was very low as compared to the involvement of cocaine or amphetamines in this type of death, both in number and manners of death.

Heroin in combination with other drugs was the cause of death in 89 cases by overdose, a 6% increase from the previous fiscal year total of 84 cases and a 123% increase over fiscal year 1991-92's 40 cases. Heroin in combination was present in 8 drug-related deaths, 5 (62%) of which were due to gunshot or stabbing.

The numbers of deaths due to heroin over the last 21 fiscal years are shown in Figure 27, page 78. The number of such deaths for 1994-95 is the second highest seen during the last 21 fiscal years.

Deaths Involving Amphetamines (Figure 25, page 71 and Table XXXVII, page 77)

Amphetamines alone were the cause of death in 8 cases by overdose, a decrease of 1 case from the previous fiscal year. Amphetamines alone were also present in 6 drug-related deaths, 3 of which (50%) were the result of gunshot or stabbing.

Amphetamines in combination with other drugs were the cause of death in 31 cases by overdose, an increase of 19% over the previous fiscal year. Amphetamines in combination with other drugs were present in 8 drug-related deaths, 2 of which (25%) were due to gunshot or stabbing.

Abuse Drugs Present in Violent Deaths (See Figure 26, page 75)

Cocaine is the drug of abuse seen most frequently in deaths by homicide, suicide and vehicular deaths.

TABLE XXXII. ABUSE DRUGS

SAN FRANCISCO MEDICAL EXAMINER-CORONER'S CASES

Abuse Drugs Present Alone

Drug	Drug Caused Deaths	Drug Related Deaths	Role Unclear	Incidental Finding
Cocaine alone	19	23	8	2
Heroin alone	27	1	0	5
Amphetamines alone	8	6	2	5
PCP alone	0	0	0	0

Abuse Drugs Present in Combination with Other Drugs

Drug	Drug Caused Deaths	Drug Related Deaths	Role Unclear	Incidental Finding
Cocaine in combination	68	20	9	1
Heroin in combination	90	8	3	0
Amphetamines in combin.	32	8	3	4
PCP in combination	1	1	0	0

TABLE XXXIII. ABUSE DRUGS

INCIDENCE BY SEX, RACE, AGE, AND ALCOHOL INVOLVEMENT

Drugs Present Singly

	SEX		RACE					
Drug	%M	%F	%W-NH	%W-H	%B-NH	Mean Age	% WITH ALCOHOL	AVE. ALC. CONC (g%)
COCAINE-DC*	68	32	37	0	53	38.7	22	0.14
COCAINE-DR**	83	17	22	4	65	35.3	35	0.12
HEROIN -DC*	93	7	81	11	7	36.7	70	0.14
HEROIN -DR**	0	100	100	0	0	15.0	0	-
AMPHET.-DC*	100	0	100	0	0	37.8	38	0.05
AMPHET.-DR**	67	33	100	0	0	26.8	17	0.09
PCP-DC*	--------------------NONE----------------------------------							
PCP-DR**	--------------------NONE----------------------------------							

Drugs Present in Combination

	SEX		RACE					
Drug	%M	%F	%W-NH	%W-H	%B-NH	Mean Age	% WITH ALCOHOL	AVE. ALC. CONC (g%)
COCAINE+-DC*	79	21	59	4	29	39.4	41	0.13
COCAINE+-DR**	95	5	47	5	37	35.5	25	0.19
HEROIN+-DC*	78	22	70	6	21	40.1	37	0.14
HEROIN+-DR**	100	0	38	12	38	38.1	25	0.11
AMPHET+-DC*	78	22	78	0	16	37.5	34	0.09
AMPHET+-DR**	100	0	88	0	0	34.5	12	0.08
PCP+-DC*	100	0	100	0	0	31.0	100	0.03
PCP+-DR**	100	0	0	0	0	24.0	100	0.22

* DC = Drug Caused

** DR = Drug Related

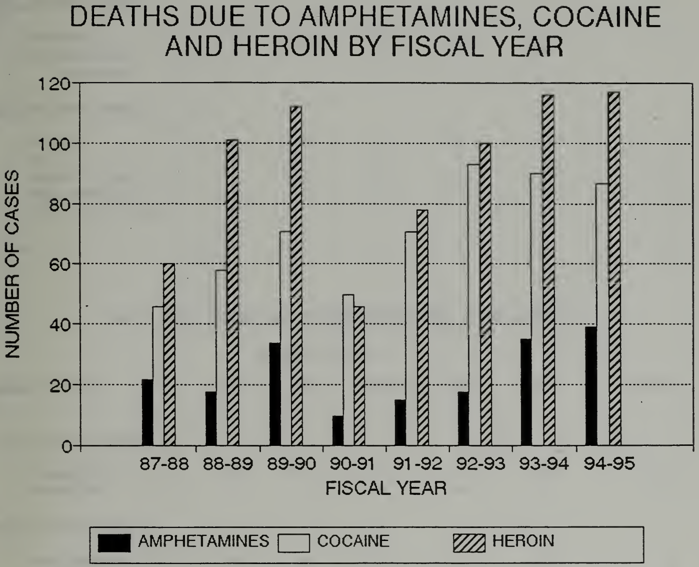

DEATHS DUE TO AMPHETAMINES, COCAINE AND HEROIN BY FISCAL YEAR
NUMBER OF CASES
120
100
80
60
40
20
0
87-88
88-89
89-90
90-91
91-92
92-93
93-94
94-95
FISCAL YEAR
■ AMPHETAMINES
☐ COCAINE
▨ HEROIN

Figure 25.

DEATHS INVOLVING COCAINE

TABLE XXXIV. COCAINE PRESENT ALONE

CAUSE OF DEATH	Manner of Death ACC	SUI	HOM	NC	UND	TOTALS
Drug Caused Deaths						
OVERDOSE	18	0	0	0	0	18
INTRACEREBRAL HEMORRHAGE	1	0	0	0	0	1
Drug Related Deaths						
ASTHMA	1	0	0	0	0	1
FALL	3	0	0	0	1	4
GUNSHOT WOUND	0	0	14	0	0	14
HEAD TRAUMA	1	0	0	0	0	1
STABBING/CUTTING	0	1	2	0	0	3
TOTALS	24	1	16	0	1	42

TABLE XXXV. COCAINE IN COMBINATION WITH OTHER DRUGS

CAUSE OF DEATH	Manner of Death ACC	SUI	HOM	NC	UND	TOTALS
Drug Caused Deaths						
OVERDOSE	65	2	0	0	0	67
DROWNING	0	1	0	0	0	1
Drug Related Deaths						
ASPIRATION	1	0	0	0	0	1
GUNSHOT WOUND	0	0	8	0	0	8
HEAD TRAUMA	1	0	1	0	0	2
JUMP/FALL BLDG.	1	0	0	0	2	3
STABBING/CUTTING	0	1	3	0	0	4
VEHICULAR	2	0	0	0	0	2
TOTALS	70	4	12	0	2	88

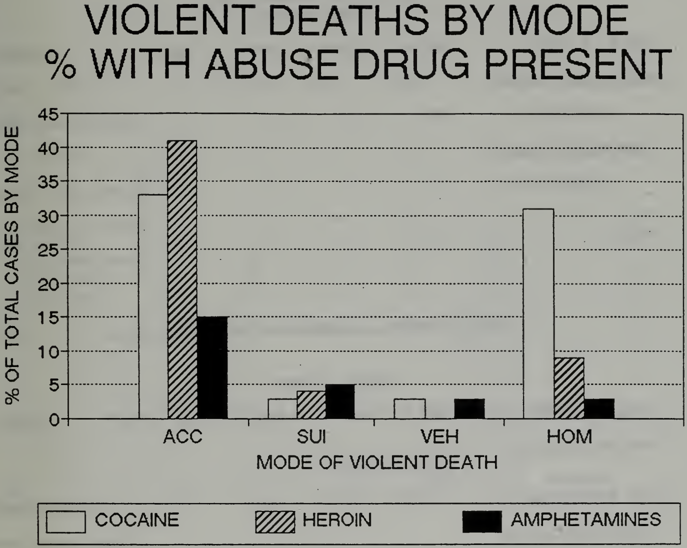

VIOLENT DEATHS BY MODE
% WITH ABUSE DRUG PRESENT
% OF TOTAL CASES BY MODE
45
40
35
30
25
20
15
10
5
0
ACC
SUI
VEH
HOM
MODE OF VIOLENT DEATH
COCAINE
HEROIN
AMPHETAMINES

Figure 26.

TABLE XXXVI. DEATHS INVOLVING HEROIN

HEROIN PRESENT ALONE

	Manner of Death				
CAUSE OF DEATH	ACC	SUI	HOM	UND	TOTALS
Drug Caused Deaths					
OVERDOSE	26	1	0	0	27
Drug Related Deaths					
STRANGULATION	0	0	1	0	1
TOTALS	26	1	1	0	28

HEROIN PRESENT IN COMBINATION WITH OTHER DRUGS

	Manner of Death				
CAUSE OF DEATH	ACC	SUI	HOM	UND	TOTALS
Drug Caused Deaths					
OVERDOSE	87	1	0	1	89
ASPIRATION	1	0	0	0	1
Drug Related Deaths					
FALL	2	0	0	0	2
GUNSHOT WOUND	0	0	4	0	4
HEAD TRAUMA	1	0	0	0	1
STABBING/CUTTING	0	0	1	0	1
TOTALS	91	1	5	1	98

TABLE XXXVII. DEATHS INVOLVING AMPHETAMINES

AMPHETAMINES PRESENT ALONE

	Manner of Death				
CAUSE OF DEATH	ACC	SUI	HOM	UND	TOTAL
Drug Caused Deaths					
OVERDOSE	8	0	0	0	8
Drug Related Deaths					
GUNSHOT WOUND	0	1	1	0	2
HANGING	0	1	0	0	1
JUMP/BUILDING	0	1	0	0	1
STABBING	0	0	1	0	1
VEHICULAR	1	0	0	0	1
TOTALS	9	3	2	0	14

AMPHETAMINES PRESENT IN COMBINATION WITH OTHER DRUGS

	Manner of Death				
CAUSE OF DEATH	ACC	SUI	HOM	UND	TOTAL
Drug Caused Deaths					
OVERDOSE	30	1	0	0	31
DROWNING	0	1	0	0	1
Drug Related Deaths					
ASPIRATION	1	0	0	0	1
GUNSHOT WOUND	0	0	1	0	1
HANGING	0	1	0	0	1
HEAD TRAUMA	2	0	0	0	2
INTRACEREBRAL HEMORRHAGE	0	0	0	1	1
JUMP/BUILDING	0	0	0	1	1
STABBING/CUTTING	0	1	0	0	1
TOTALS	33	4	1	2	40

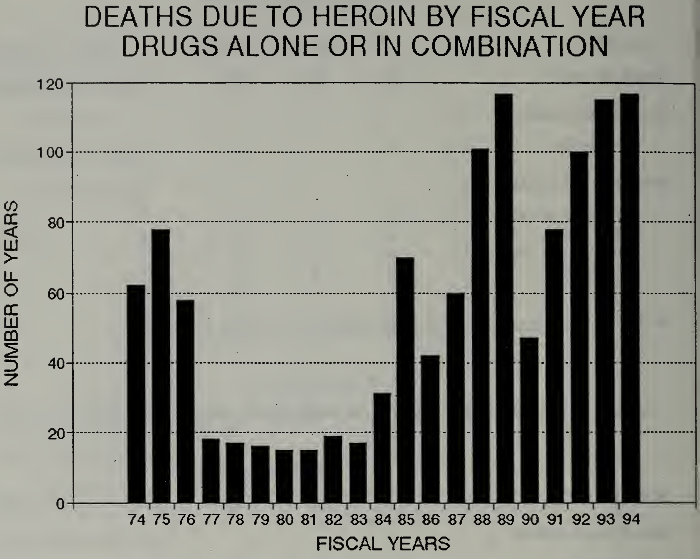

DEATHS DUE TO HEROIN BY FISCAL YEAR
DRUGS ALONE OR IN COMBINATION
NUMBER OF YEARS
0
20
40
60
80
100
120
74
75
76
77
78
79
80
81
82
83
84
85
86
87
88
89
90
91
92
93
94
FISCAL YEARS

Figure 27.

GLOSSARY

ALKALOID OF MORPHINE GROUP	Typically referred to as morphine-type alkaloid, this is the chemical substance found in body fluids after the injection of heroin or other drugs derived from opium
TOXICOLOGY NOT VALID OR ELIMINATED	This term indicates that the deceased lived long enough after the injury to have eliminated some or all toxic agents from the body
FORENSIC PATHOLOGY	The specialty field of medicine involving the application of medical and pathology principles in determining the cause and manner of sudden, unexpected, and medically unattended deaths. This includes the type and nature of injury, public health hazards, type or nature of homicide weapon, the relation of injury to death and interpreting other factors for the court. These data are prepared and presented to the judicial system or public health interests in keeping with the best available knowledge
MODE OF DEATH	Indicates the manner of death, such as natural, accident, suicide or homicide, and is to be distinguished from cause of death, which is purely a medical determination
MODE EQUIVOCAL	With the cause of death determined, investigative data do not clearly differentiate between two modes of death, al- though some evidence supports one more likely
MODE UNDETERMINED	With the cause of death determined, investigative data do not clearly support one of two possible modes and either one is possible without prejudice
MODE UNKNOWN	Circumstances insufficient to indicate between possible modes, as when only bones are found, or when no medical cause of death is determined
PATHOLOGY	That branch of medicine which deals with the essential nature of disease, especially in the structural or functional changes in tissues, organs or systems of the body causing disease. It involves the diagnosis of disease by microscopic or chemical analysis
SEROLOGY	That branch of pathology which deals with the analysis of blood and body fluids. Blood types for identification, exclusion of a suspect or judicial purposes are examples of the use in this office

TOXICOLOGY	The scientific study of poisons, their detection, actions and treatment. The relationship of drug levels to emotional or personality change, behavioral or reasoning ability are frequent decisions based on these data
MEDICAL EXAMINER	A physician specifically trained in forensic pathology who is responsible for investigating and determining the cause and manner of sudden or unexpected death
AUTOPSY	A scientific dissection of the human body to determine the cause and nature of death in order to detect public health hazards, determine the method or type of death in homicides and improve the level of medical care in the community. In some cases, showing that no injury or wrongdoing was present is of great emotional and stabilizing value to the family

SEAL OF THE CITY AND COUNTY OF SAN FRANCISCO
ORO EN PAZ
FIERRO
EN GUERRA

ANNUAL REPORT

July 1, 1995 - June 30, 1996

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Boyd G. Stephens, M.D.
Chief Medical Examiner
850 Bryant Street
San Francisco, California 94103

MEDICAL EXAMINER'S OFFICE
City and County of San Francisco, California

ANNUAL REPORT

July 1, 1995 - June 30, 1996

Lisa J. Nasir
Editorial / Production / Design

Donna J. Allison, Ph.D.
Data Collection and Analysis / Statistics

Boyd G. Stephens, M.D.
Chief Medical Examiner

and County of San Francisco **Chief Medical Examiner**

December 1997

The Honorable Willie L. Brown, Jr., Mayor
The Honorable Board of Supervisors
City and County of San Francisco
San Francisco, CA 94102

Dear Mayor Brown and Honorable Supervisors:

The attached Annual Report covers the fiscal year 1995-96.

Although the title of the Department was changed to that of Medical Examiner in 1974 by the Board of Supervisors, the County Charter required that among the County Officers there be a Coroner; therefore, the Department had to hyphenate the name Medical Examiner-Coroner until the Charter could be changed. This was accomplished recently, and the Office henceforth will be known as the Office of the Medical Examiner. For the Department this is a significant change, since it reflects more properly the difference between a lay coroner's office and a professional medical examiner's office, and the considerable differences in capabilities and function.

Over the last budget year we have been able to procure some equipment that will help increase productivity and capabilities for the Toxicology Department and Administrative Division. Improvements in computerization, as well as training for the staff, will further improve our Department's capabilities and reduce turnaround time for completion of reports that are needed by families.

There continues to be considerable savings of taxpayers' money regarding the care of the indigent deceased in the County. Revenues have maintained the previous level.

There is an increasing demand by the judicial system for scientific evidence which is often a significant factor at trial. The public's concern, especially after the O.J. Simpson Trial, is still evident. The increasing number of prescription drugs requires development of new methodologies for their detection and has been a challenge for the Department which we have successfully addressed.

I am consistently proud of my staff. They are dedicated employees who often do much more than their job requires. They exhibit great empathy for the families with whom we interact, and the medical staff treats the suspects and victims we see with considerable professional skill. The mission of this Department is to continue to perform good quality forensic medicine for the benefit of the citizens of the City and County of San Francisco, and this will continue to be our goal in future years.

Sincerely,

Boyd G. Stephens, M.D.
Chief Medical Examiner

) 553-1694 **Hall of Justice, 850 Bryant Street** **San Francisco, CA 94103**

ACCREDITED NATIONAL ASSOCIATION OF MEDICAL EXAMINERS

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INTRODUCTION

The **Medical Examiner** is appointed by law to many responsibilities, the foremost of which is the investigation and certification of a variety of deaths including all deaths of other than natural causation, and any apparently natural deaths in which no physician can reasonably state the cause. The Medical Examiner can utilize any and all medico-legal investigative techniques, including autopsy, to establish both the medical cause of death, and mode or circumstances of death (natural, accident, homicide, suicide or undetermined).

The deaths which must be reported to the Medical Examiner, as required by various sections of the Government, Health and Safety and Penal codes, are as follows:

1. Homicide - known or suspected
2. Suicide - known or suspected
3. Following accident or injury (whether the accident or injury is the primary cause or contributory, with death occurring immediately or at some remote time)
4. Medical attendance of less than 20 days
5. No physician in attendance
6. Physician unable to state the cause of death (must be unable, not merely unwilling)
7. Poisoning (food, chemical, drug, therapeutic agents)
8. Occupational or industrial deaths
9. All deaths where a patient has not fully recovered from an anesthetic, whether in surgery, recovery room, or elsewhere
10. All deaths in operating rooms
11. All solitary deaths (unattended by physicians or other person in the period immediately preceding death)
12. All deaths in which the patient is comatose throughout the period of the physician's attendance
13. All deaths of unidentified persons
14. All deaths in which there are grounds to suspect that the death occurred in any degree from a criminal act
15. All deaths involving contagious disease - known or suspected - and constituting a public health hazard
16. Deaths in prison or while under sentence
17. All deaths associated with a rape - known or alleged - or crime against nature
18. All deaths related to or following abortion - known or suspected
19. All deaths involving drowning, fire, hanging, gunshot, stabbing, cutting, starvation, exposure, alcoholism, drug addiction, strangulation or aspiration

Additional mandated responsibilities include protecting and safekeeping of property belonging to deceased individuals, conducting inquests when indicated, maintaining proper public records, making reports to other agencies, identification of deceased persons, interment of indigent dead, and many other death related activities.

FORENSIC MEDICINE

Forensic medicine generally is considered to be a marriage of medicine and the forensic sciences oriented to medico-legal issues. The field is wide-ranging and growing, becoming even broader in scope than the traditional concept as practiced in Europe. As a Medical Examiner, we commonly see living persons for medico-legal purposes often interpreting these findings for court purposes.

There has been continued growth and accentuation of the role of forensic medicine in the legal and medico-legal world over the past year. This office has continued its role in forensic medicine for both living and dead, playing a vital role in the community.

We serve in a number of places in the community. Some of these include:

Examination and diagnosis of the living:

- Examination and evaluation of child abuse
- Examination and evaluation of sexual assault injuries
- Examination and evaluation of spousal abuse
- Evaluation of citizens' complaints against the Police Department
- Testimony and interpretation of hospital records and procedures
- Evaluation of force and patterned injuries
- Examination of victims and suspects for trace evidence and injuries
- Collection of blood from suspects and victims for serology, toxicology and other testing
- Court testimony on force, great body injury (GBI) and other issues
- Alcohol and drug interaction in driving under the influence cases and related issues
- Physiologic effects of drug interactions
- Toxicology, including environmental and industrial toxicities
- Teaching - hospitals, forensic, law enforcement, community
- Analysis for drugs on patients on probation
- Analysis for drugs on management control cases for the County

Examination and evaluation of the dead:

- Scene investigation, reconstruction and analysis
- Evidence collection and testing
- Blood spatter analysis and interpretation
- Patterned evidence analysis and interpretation
- Trace evidence collection
- Time and place of death information
- Forensic autopsy - consultation and interpretation
- Analysis for chemical and limited serology testing
- Forensic toxicology
- Consultation with District Attorney and Public Defender
- Reconstruction Analysis and court presentation
- Teaching - forensic and legal

DEPARTMENT STATUS AND FUTURE

Although we have received some new equipment in the immediate past and current fiscal year, replacing outdated equipment and upgrading the Department for improved proficiency and reducing the turnaround time to completion of our reports, is still a major goal. A significant amount of this equipment was purchased with state mandate money recovered from the Sudden Infant Death Program.

We continue to update the autopsy facilities and train staff to comply with OSHA requirements. The safety regulations promulgated by State and Federal Authorities significantly increase the cost of performing our investigations. These are requirements, however, not options, and we must comply to insure that our employees operate in a safe work site at all times.

Upgrading our toxicology and pathology procedures continues to be an ongoing process. Compliance with laws that relate to forensic testing, as well as developing new methodologies for prescription and street drugs, is a constant process. New legally prescribed drugs come to the market on a regular basis. Illegal drugs often come into the County with little warning but significantly impact the public health system, the jails, courts and of course the Medical Examiner.

As we upgrade our computer capabilities, record handling and data information are becoming more accessible to this and other departments. Information regarding drugs and deaths is an integral part of public health as well as in preparations to improve the safety and welfare for the citizens. Therefore, the data we collect have a direct impact and importance to a number of other departments and agencies. The staff is dedicated and hard working. Even though we have had reduced staff in a number of areas, they have generally been able to organize their time and work to maintain the same, or nearly the same, level of service to the public. Although we have had delays in completing our work in the past, we expect this problem to improve with the local area network and computer capabilities. We have reduced services to other departments. However, drug testing for a number of departments continues to be an integral part of the Department's work. This is predominantly recruit and management control testing for several major departments in the City. By doing the testing within the County, we not only save a considerable amount of tax payers' money but have a ready source of consultation and support for the requesting departments.

Our plans for this next fiscal year are to continue to improve on the areas that are mentioned above as well as to expand our service capabilities.

DEPARTMENTAL COSTS

FISCAL YEAR 1995 - 1996

Total Budget	$3,522,399.00
Transfers to Controller, Health and Retirement	$ 506,281.00
Net Budget (all other costs)	$3,016,118.00
Total Cases.	4,743
Cost per case investigated	$ 635.91
Revenues (sales of records, public auctions, fee-for-service work)	$ 175,000.00
Total Costs Ad Valorum Taxes per case investigated	$ 599.00

As indicated elsewhere, this includes all investigative, administrative, scientific and expert witness costs to the County.

ORGANIZATIONAL CHART

Medical Examiner's Office

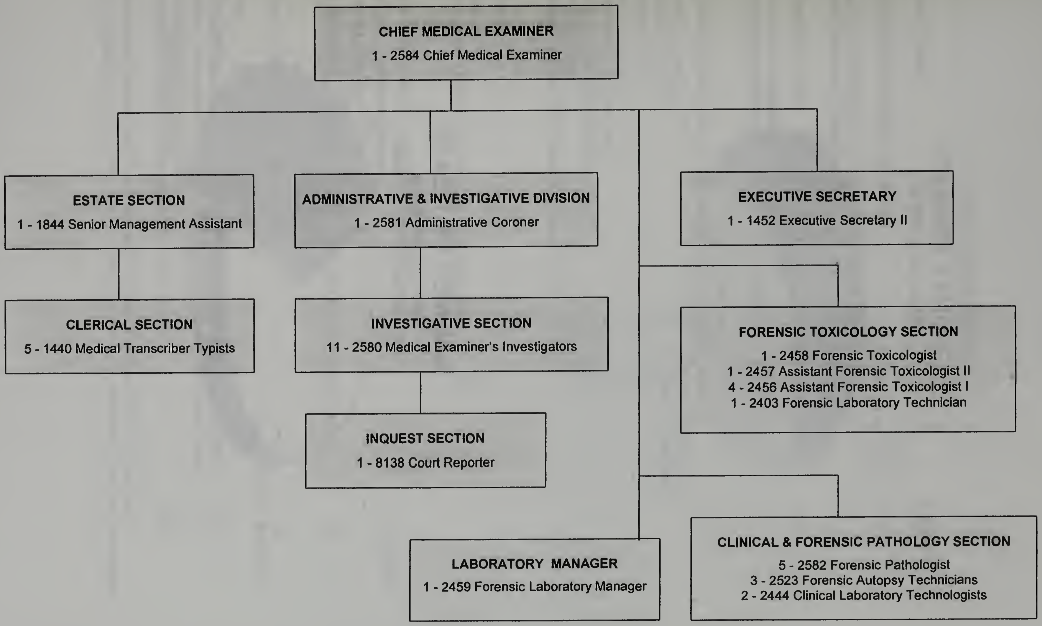

CHIEF MEDICAL EXAMINER
1 - 2584 Chief Medical Examiner
ESTATE SECTION
1 - 1844 Senior Management Assistant
CLERICAL SECTION
5 - 1440 Medical Transcriber Typists
ADMINISTRATIVE & INVESTIGATIVE DIVISION
1 - 2581 Administrative Coroner
INVESTIGATIVE SECTION
11 - 2580 Medical Examiner's Investigators
INQUEST SECTION
1 - 8138 Court Reporter
EXECUTIVE SECRETARY
1 - 1452 Executive Secretary II
FORENSIC TOXICOLOGY SECTION
1 - 2458 Forensic Toxicologist
1 - 2457 Assistant Forensic Toxicologist II
4 - 2456 Assistant Forensic Toxicologist I
1 - 2403 Forensic Laboratory Technician
LABORATORY MANAGER
1 - 2459 Forensic Laboratory Manager
CLINICAL & FORENSIC PATHOLOGY SECTION
5 - 2582 Forensic Pathologist
3 - 2523 Forensic Autopsy Technicians
2 - 2444 Clinical Laboratory Technologists

Figure 1.

COUNTY DEATHS

FISCAL YEAR 1995-96

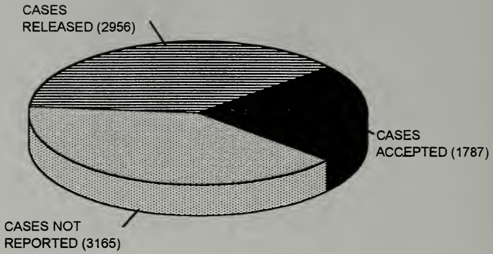
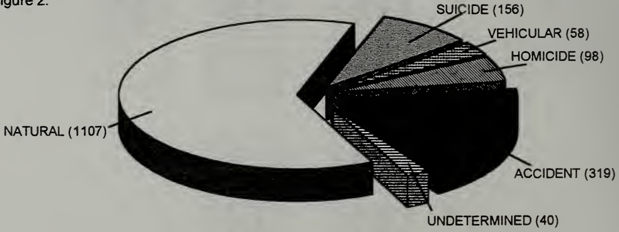


Figure 2.

MANNER OF DEATH

FISCAL YEAR 1995-96
JUSISDICTION ON 1787 CASES



FISCAL YEAR 1995-96

Total Deaths in County		7,908
Total Deaths Reported to Medical Examiner		4,743
Cases Reported, Investigated and Cleared by the Medical Examiner for physician's signature		2,956
Medical Examiner's Cases		1,787
% County Deaths Reported to Medical Examiner	60.0 %	
% County Deaths Having Medical Examiner's Jurisdiction	22.6 %	

Cases Accepted by the Medical Examiner (by manner of death) *

1. Natural Deaths (NC)	1,107	(61.9%)
2. Accidents (ACC)	319	(17.9%)
3. Suicides (SUI)	156	(8.7%)
4. Homicides (HOM)	98	(5.5%)
5. Mode Undetermined (UND)	40	(2.2%)
6. Sudden Infant Death Syndrome (SIDS)	8	(0.4%)
7. Vehicular (VEH)	58	(3.2%)
8. Private Autopsies (Not included in above figures)	1	

Autopsy Index

Full Autopsy	60%
Partial Autopsy / External Examination / Record Review **	40%

Dispositions Authorized by the Medical Examiner

1. Indigents and fetus dispositions Adults - 264 Infants - 10	274
2. Cases buried by funeral home with Public Administrator-controlled funds	53

Inquests Held or Depositions Taken	31

Identification

1. Persons brought to Medical Examiner's Office with insufficient identification	210
2. Persons subsequently identified by fingerprints, dental X-rays or other means	207
3. Persons interred as unidentified	3
4. Fingerprints taken and forwarded to FBI, CII, or SFPD	1,600

* The abbreviations following each manner of death will be used in most tables in this report.

** Includes 61 indigent cases all of whom were externally examined by a Medical Examiner's Investigator

CONSULTATIONS, COURT APPEARANCES, EXAMINATIONS AND REFERRALS

FISCAL YEAR 1995-96

Court appearances are made and consultations are conducted, as required, on cases involving both living and deceased individuals.

Type	**Number**
Court appearances	87
Consultations	1,045
Examinations	
Suspected child abuse	1
Specimens submitted for toxicology testing from living individuals	
Living victims or defendants in violent crimes	52
Management control - other City departments	334
Probation - Juvenile	35
DUI suspects	814

MEDICAL EXAMINER CASES

FISCAL YEAR 1995-96

In fiscal year 1995-96, there were 7,908 deaths in San Francisco County. Of these deaths, 4,743 were reported to the San Francisco Medical Examiner's Office. The Medical Examiner's Investigators examined the previous medical history, circumstances surrounding the deaths and, in many cases, the scene of the death, and determined that 1,786 of these deaths came under the jurisdiction of this office. (See Figure 1, page 8). Full or partial autopsies or external examinations were performed on all cases.

1. The highest total **number of deaths** occurred in January, 1996. The highest number for the various manners of death occurred during other months (e.g., highest numbers of homicides in December 1995 and January 1996, suicides in August 1995, the highest number of vehicular deaths in November 1995 and non-vehicular accidents in December 1995). See Table I and Figure 3, page 12.

2. The **racial distribution** for each manner of death was quite variable. For example, the value of the ratio of whites / blacks was 4.6 overall, 4.7 for accidents, 12.1 for suicides (as compared to 27.8 for 1989-90 and 13.4 for 1992-93) and 1.1 for homicides. See Table II, page 13 and Figure 5, Page 15.

3. The **age range distribution** for each manner of death was also variable. For example, the highest number of accidental deaths and suicides occurred in the 40-49 year age group, the highest number of homicides occurred in the 20-29 and 30-39 year age groups, and the highest number of vehicular deaths in the 70-79 year age group. See Table III, page 13.

4. The **overall distribution** of deaths by sex (ratio of male / female) was 2.2, but this varied by manner of death from 1.7 in deaths due to natural causes to 5.5 in suicide deaths. See Table IV and Figure 4, page 14.

MEDICAL EXAMINER CASES FOR 1995-96

TABLE I. MANNER OF DEATH - MONTHLY COMPARISON

	Manner of Death							
Month of Death	**ACC**	**HOM**	**SUI**	**NC**	**VEH***	**SIDS****	**UND**	**TOTALS**
July	22	10	14	85	6	0	2	139
August	24	9	21	70	5	0	5	134
September	27	8***	16	91	5	0	4	152
October	26	8	13	80	5	0	3	135
November	31	8	15	73	7	1	1	136
December	37	11	13	102	6	2	4****	175
January	27	11	10	115	4	2	9	178
February	27	6	7	100	5	1	7	153
March	23	6	11	106	4	2	2	154
April	25	7	11	103	3	0	3	152
May	23	4	11	92	5	0	0	135
June	27	10	14	90	3	0	0	144
TOTALS	**319**	**98**	**156**	**1,107**	**58**	**8**	**40**	**1,786**

* = Vehicular Death. These include 2 deaths ruled to be homicide, 53 cases ruled to be accidental, and 2 rules to be suicide, and 1 with mode undetermined.

** = Sudden Infant Death Syndrome

*** = 1 Marin County case not included in tabulations

**** = 1 San Mateo case included in tabulations

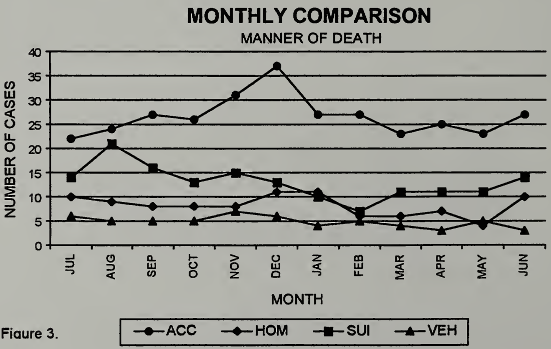


Figure 3.

TABLE II. MANNER OF DEATH BY RACE

Manner of Death

Race	ACC	HOM	SUI	NC	VEH*	SIDS**	UND	TOTALS
White	243	40	121	778	40	3	27	1,252
Black	52	37	10	157	2	4	7	269
Asian	19	19	22	136	16	1	4	217
Other / Unknown	5	2	3	36	0	0	2	48
TOTALS	**319**	**98**	**156**	**1,107**	**58**	**8**	**40**	**1,786**

TABLE III. MANNER OF DEATH BY AGE

Manner of Death

Age Group	ACC	HOM	SUI	NC	VEH *	UND	TOTALS
0-11 months	3	0	0	12**	0	0	15
1-5 years	2	0	0	1	0	0	3
6-12 years	3	0	0	1	0	0	4
13-16 years	0	4	0	0	3	0	7
17-19 years	1	4	5	1	2	0	13
20-29 years	22	32	21	9	11	3	98
30-39 years	90	32	27	59	11	8	227
40-49 years	109	11	39	122	6	17	304
50-59 years	32	6	29	168	3	4	242
60-69 years	18	4	13	191	0	4	230
70-79 years	16	4	14	237	14	4	289
80-89 years	16	1	7	231	8	0	263
90 + years	7	0	1	79	0	0	87
Unknown	0	0	0	4	0	0	4
TOTALS	**319**	**98**	**156**	**1,115**	**58**	**40**	**1,786**

* VEH = Vehicular deaths. These include 2 deaths ruled to be homicide, 53 cases ruled to be accidental, 2 ruled to be suicide, and 1 with mode undetermined.

** Includes 8 SIDS (Sudden Infant Death Syndrome) deaths

TABLE IV. MANNER OF DEATH BY SEX

Manner of Death

Sex	ACC	HOM	SUI	NC	VEH*	SIDS**	UND	TOTALS
Male	244	77	132	704	39	5	30	1,231
Female	75	21	24	403	19	3	10	555
Unknown	0	0	0	0	0	0	0	0
TOTALS	**319**	**98**	**156**	**1,107**	**58**	**8**	**40**	**1,786**

* = Vehicular deaths. These include 2 cases ruled to be homicide, 53 ruled to be accidental, 2 ruled to be suicide, and 1 with mode undetermined.

** = Includes 8 SIDS (Sudden Infant Death Syndrome) deaths

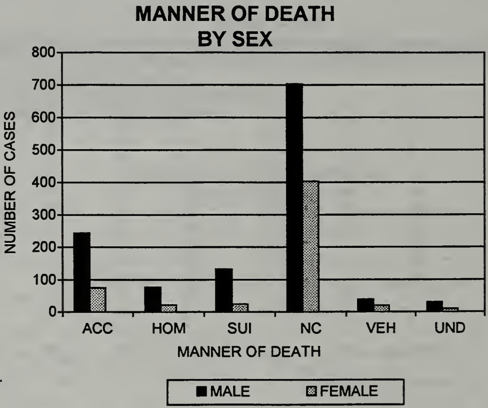


Figure 4.

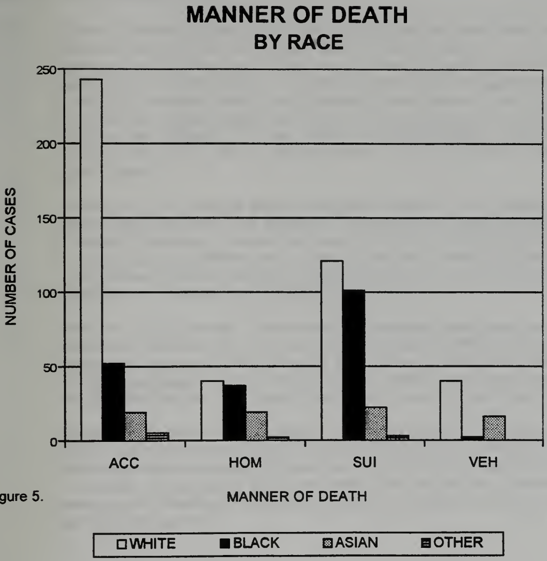

MANNER OF DEATH
BY RACE
NUMBER OF CASES
250
200
150
100
50
0
ACC
HOM
SUI
VEH
MANNER OF DEATH
☐ WHITE
■ BLACK
▨ ASIAN
▤ OTHER

Figure 5.

YEARLY COMPARISON OF MEDICAL EXAMINER'S CASES

Comparisons of manners of death as well as methods used over the last nine fiscal years are presented in this section. The most significant differences which have occurred over the last nine years which can be observed in these tabulations include:

1. Regarding **manners of death**, the number of homicides (98) during fiscal year 1995-96 was an increase of only 4% from the 94 homicides recorded in 1994-95. The number of accidental deaths increased by 10% from 1993-94, and is the second highest number of accidental deaths during the last nine fiscal years. The number of cases ruled to be suicide (156) was an increase of 26% from fiscal year 1994-95 and the highest number observed since 1988-89. The number of deaths due to natural causes which came under the jurisdiction of this office increased 21% from fiscal year 1994-95. The total number of vehicular deaths (58) was the second lowest number observed during the last nine fiscal years. (See Table V and Figure 6, page 18 and Figure 2, page 8).

2. With respect to the **methods used in homicide deaths**, the most notable difference from the previous fiscal years is the 13% decrease in homicides due to firearms from 68 in 1994-95 to 59 in 1995-96. The number of deaths from firearms in 1995-96, while being the lowest number seen by this method since 1990-91, still accounts for 59% of the homicides (See Table VI and Figure 7, page 19 and Figure 24, page 55). There was a striking increase in homicides due to traumatic injuries from 9 in 1994-95 to 18 in 1995-96!

3. There was a 26% increase in the **number of suicides** during fiscal year 1995-96 (156) as compared to 1994-95 (124). There was a notable increase (88%) in deaths due to firearms as compared to fiscal year 1994-95 (from 24 to 45 cases) and the upward trend in suicide deaths from drug overdoses (from 25 in 1993-94 to 37 in 1994-95) continued and increased 32% to 49 such deaths in 1995-96. (See Table VII and Figure 8, page 20, and Figure 24, page 55).

4. Regarding deaths ruled to be **accidental**, those which resulted from drug overdoses were at the highest level observed during the last nine fiscal years (210). Deaths due to falls were at their second lowest level seen during the last nine fiscal years, decreasing 19% from 59 such deaths in 1994-95. The number of deaths from falls is still second only to deaths from drugs as a leading cause of accidental deaths (See Table VIII and Figure 9, page 21, Figure 10, page 22 and Figure 24, page 55).

YEARLY COMPARISONS OF MEDICAL EXAMINER'S CASES

TABLE V. YEARLY COMPARISON OF MANNER OF DEATH

	Fiscal Year								
Manner of Death	**'87-'88**	**'88-'89**	**'89-'90**	**'90-'91**	**'91-'92**	**'92-'93**	**'93-'94**	**'94-'95**	**'95-'96**
Accident	258	258	298	229	266	286	270	296	319
Homicide	110	91	94	88	123	127	118	94	98
Suicide	162	171	128	154	153	132	136	124	156
Natural	1,074	1,010	903	911	885	930	816	925	1,115
Vehicular*	75	71	76	83	79	79	54	80	58
Undetermined	82	85	76	72	53	58	42	30	40
TOTALS	**1,761**	**1,686**	**1,575**	**1,537**	**1,557**	**1,612**	**1,451**	**1,549**	**1,789**

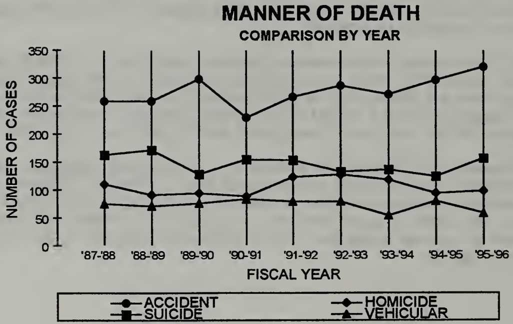


Figure 6.

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* Vehicular deaths include 2 cases ruled to be homicide, 53 cases ruled to be accidental, 2 ruled to be suicide and 1 with mode undetermined.

TABLE VI. YEARLY COMPARISON OF HOMICIDE METHODS USED

	Fiscal year								
Method Used	**'87-'88**	**'88-'89**	**'89-'90**	**'90-'91**	**'91-'92**	**'92-'93**	**'93-'94**	**'94-'95**	**'95-'96**
Firearms	48	41	61	50	70	75	83	68	59
Stabbing	35	21	17	17	20	24	18	14	16
Traumatic Injury	23	22	10	14	22	16	12	9	18
Vehicular	13	16	10	16	15	14	11	6	2
Asphyxia / Strangulation	3	5	3	5	7	4	1	3	3
Other	1	2	3	2	4	8	4	0	2
TOTALS	**123**	**107**	**104**	**104**	**138**	**141**	**129**	**100**	**100**

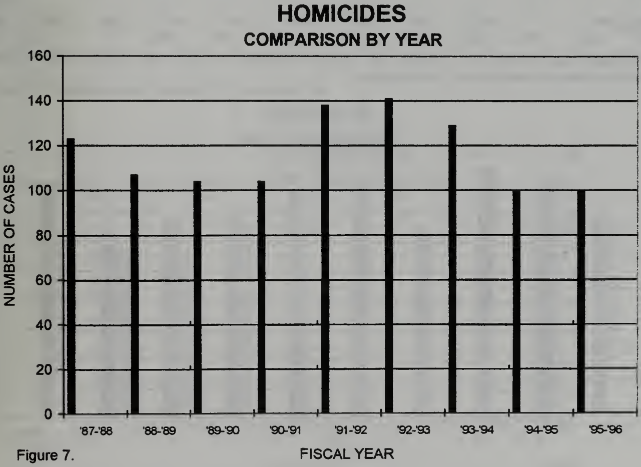


Figure 7.

TABLE VII. YEARLY COMPARISON OF SUICIDE METHODS USED

Fiscal year

Method Used	'87-'88	'88-'89	'89-'90	'90-'91	'91-'92	'92-'93	'93-'94	'94-'95	'95-'96
Burning	0	2	0	2	0	0	1	4	0
CO Poisoning	2	2	9	5	6	5	3	1	3
Cutting / Stabbing	8	5	3	7	2	9	8	5	2
Drowning	3	2	0	1	2	3	1	3	9
Firearms	42	44	35	40	37	32	44	24	45
Hanging	28	17	23	25	23	22	22	19	19
Jump - Bay Bridge	1	2	2	0	2	1	5	2	1
Jump - Building	19	30	7	13	20	8	12	19	10
Jump - G. G. Bridge	18	15	10	13	4*	1	3	1	4
Jump - Other	-	-	-	-	2	3	3	0	1
Poisoning	32	44	31	37	44	31	25	37	49
Suffoc. / Strang.	7	7	6	6	9	14	9	7	13
Vehicular / BART	-	-	-	-	2	2	0	0	2
Other	2	1	2	7	0	2	0	2	0
TOTALS**	**162**	**171**	**128**	**156**	**153**	**133**	**136**	**124**	**158**

* Starting midway in fiscal year 1991-92, most Golden Gate Bridge suicides were handled by Marin County.
** Includes vehicular deaths ruled to be suicides.

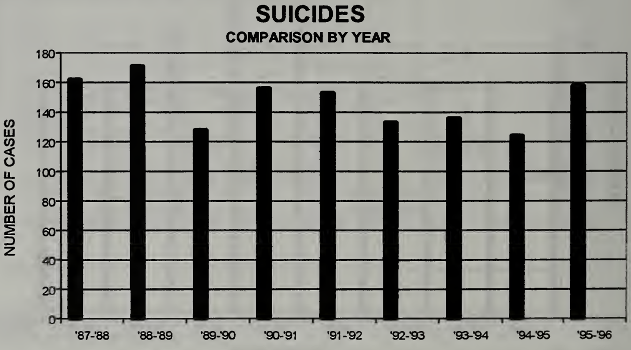


Figure 8.

TABLE VIII. YEARLY COMPARISON OF ACCIDENTAL* DEATH SITUATIONS

	Fiscal year								
Situation	**'87-'88**	**'88-'89**	**'89-'90**	**'90-'91**	**'91-'92**	**'92-'93**	**'93-'94**	**'94-'95**	**'95-'96**
Asphyxia	2	8	8	3	3	5	5	2	11
Aspiration	10	5	13	10	12	6	12	17	2
Burns	12	3	15	10	4	4	8	7	5
Drowning	14	11	10	12	4	5	11	6	5
Drug Reactions	-	-	-	4	2	0	1	3	0
Drug / Alcohol Abuse	13	9	3	6	13	18	9	5	5
Drugs / Poisons	100	144	157	97	123	156	158	169	210
Falls	76	54	53	55	61	58	48	59	48
Firearms	1	3	0	2	2	1	2	2	1
Hanging	2	2	0	2	0	1	1	1	2
Head Trauma	-	-	11	3	1	6	1	4	3
Medical Misadventure	13	6	7	12	18	8	5	6	13
Smoke / CO Inhal.	8	11	4	8	14	6	2	7	8
Other	7	2	5	5	9	9	7	8	6
TOTALS	**258**	**258**	**298**	**229**	**266**	**286**	**270**	**296**	**319**

* Vehicular deaths are not included in this tabulation.

ACCIDENTS

COMPARISON BY YEAR

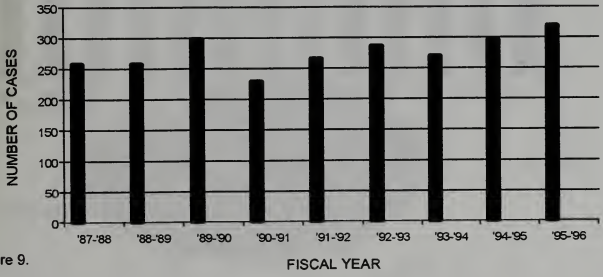


Figure 9.

YEARLY COMPARISON OF ACCIDENTAL DEATHS DUE TO DRUGS AND FALLS

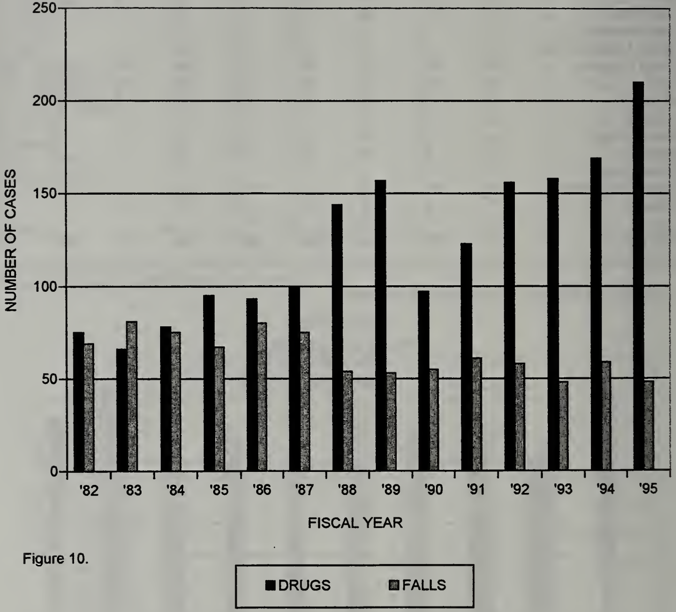


Figure 10.

TABLE IX. VIOLENT DEATHS

Of the 1,786 deaths investigated by the Medical Examiner's Office during 1995-96, 670 were determined to be the result of violence.

Mode	Total Number	% of Medical Examiner Cases	% of County Deaths
ACCIDENT	**372**	**20.8**	**4.7**
Vehicular	53	3.0	
Non-Vehicular	319	17.9	
SUICIDES	**158**	**8.8**	**2.0**
Vehicular	2	0.1	
Non-Vehicular	156	8.7	
HOMICIDE	**100**	**5.6**	**1.3**
Vehicular	2	0.1	
Non-Vehicular	98	5.5	
MODE UNDETERMINED	**40**	**2.2**	**0.5**
Vehicular	1	0.05	
Non-Vehicular	39	2.2	

VIOLENT DEATHS

FISCAL YEAR 1995-96

TOTAL = 670

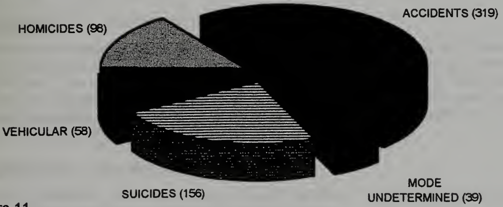


Figure 11.

ACCIDENTAL DEATHS

Three hundred and seventy-two deaths were ruled to have been due to accidental means during the 1995-96 fiscal year. Of these, 319 were non-vehicular accidental deaths. The number of individuals dying by each manner of accidental death are indicated in Figure 12, page 26 and Table X, page 27, and the percentages of all accidental deaths represented by each manner are indicated on Table X, page 27.

Of the accidental death victims tested for alcohol and drugs (i.e. those in the hospital for less than 24 hours), many had significant levels of alcohol in their blood; some had abuse drugs present (See Table X, page 27).

Abuse Drug Involvement (Table XI, page 28)

Overall, the number of times the 4 most common abuse drugs were found to be present in accidental death cases was 285, a 9% increase from fiscal year 1994-95 (262). (Note that more than 1 abuse drug may have been present in a single case.) This is in contrast to the dramatic increases seen previously - from 110 cases in fiscal year 1990-91 to 163 cases in fiscal year 1991-92 (a 48% increase!) to 222 cases in fiscal year 1992-93 (a further 36% increase from the preceding fiscal year). Of the deaths caused by drugs, heroin (measured as morphine) was seen most frequently (141 cases), an increase of 22% from last fiscal year's 116 cases. The second most frequently seen abuse drug in deaths due to drugs was cocaine (102 cases), an increase of 21% from last fiscal year. Amphetamines were present in deaths due to drugs in 27 cases, a decrease of 29% from last year's count of 38 such deaths. The number of cases with cocaine present increased 12% from the previous fiscal year (97 to 109). The number of cases with heroin present increased by 21% (from 121 to 147 cases). Deaths with amphetamines present decreased by 33% during this same time period (from 43 to 29 cases). This follows a 47% increase in cases with amphetamines present between 1991-92 (15 cases) to 1992-93 (22 cases) a 45% increase between 1992-93 and 1993-94 (32 cases) and a 34% increase to 1994-95 (43 cases). Abuse drugs may have played a role in accidental deaths due to falls (7 cases).

Racial Distribution (Figure 13, page 29 and Table XII, page 29)

Overall, accidental deaths occurred most frequently in whites. Deaths by firearms occurred less frequently in whites (0%) than would be anticipated by the overall involvement of whites in accidental deaths (76%). Asians are more heavily represented (20%) in deaths by drowning than would be expected by the involvement of Asians in accidental deaths (6%). Blacks are less heavily represented in deaths by asphyxia (9%) than would be expected based on the general involvement of blacks in all types of accidental deaths (16%).

Age Distribution (Figure 14, page 30 and Table XIII, page 31)

Deaths due to asphyxiation and burns are the most common causes of accidental deaths in the youngest age group (0-5 years). There were 3 non-vehicular accidental deaths in the age group from 6-16 years during 1995-96. The most common causes of accidental deaths in people over 60 years of age are burns (60% of all deaths due to burns and 53% of all deaths die to falls occur in this age group). Deaths due to drug overdoses are concentrated in the 20-49 year age group with 40% of all deaths due to drug overdoses occurring in the 40-49 year age group.

Distribution by Sex (Table XIV, page 32)

Males are 3.3 times as likely as females to be the victims of non-vehicular accidental deaths. This difference is less pronounced in deaths due to falls or burns.

NON-VEHICULAR ACCIDENTS

This category includes all unintentional fatalities. There were 319 accidental deaths (non-vehicular) which accounted for 17.9% of the Medical Examiner death investigations for the fiscal year of 1995-96.

ACCIDENTAL DEATH
(NON-VEHICULAR)
FISCAL YEAR 1995-96

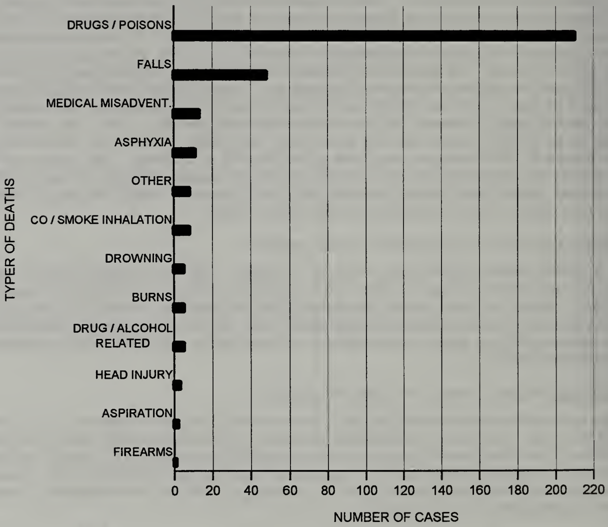


Figure 12.

TABLE X. ACCIDENTAL DEATHS BY MODE

Drug and Alcohol Involvement

Method	Number	% Of Total Accidents	% Alcohol *	Ave. Alcohol Conc. (g%)	% Drugs **
Asphyxia / Suffocation	11	3.4	43	0.17	0
Aspiration	2	0.6	0	-	0
Burns	5	1.6	0	-	0
Drowning	5	1.6	20	0.36	0
Drug Overdose	210	65.8	46	0.15	- -
Drug / Alcohol Abuse Related	5	1.6	0	-	100
Falls	48	15.0	47	0.22	44
Firearms	1	0.3	100	0.14	0
Hanging	2	0.6	0	-	0
Head Trauma	3	0.9	67	0.16	0
Medical Misadventure	13	4.1	0	-	0
Smoke / CO Inhalation	8	2.5	14	0.03	14
Other	6	1.9	25	0.24	0

* Refers to percentage of victims (of those tested) with positive blood ethyl alcohol levels.
** Refers to percentage of victims (of those tested) with positive tests for abuse drugs.

It should be noted that a blood ethyl alcohol concentration of 0.08% is considered to be intoxicated when driving.

TABLE XI. ABUSE DRUGS PRESENT IN NON-VEHICULAR ACCIDENTS

	Drugs			
Situation	**Cocaine**	**PCP**	**Morphine**	**Amphetamines**
Asphyxia / Suffocation	0	0	0	0
Aspiration	0	0	0	0
Burns	0	0	0	0
Drowning	0	0	0	0
Drug Overdose / Drug Caused	102	0	141	27
Drug / Alcohol Abuse Related	2	0	3	2
Falls	4	0	3	0
Firearms	0	0	0	0
Hanging	0	0	0	0
Head Trauma	0	0	0	0
Medical Misadventure	0	0	0	0
Smoke / CO Inhalation	1	0	0	0
Other	0	0	0	0
TOTALS	**109**	**0**	**147**	**29**

NOTE: Drugs may have been present singly or in combination.
Drugs used therapeutically are not included in this tabulation

Overall, the number of times (285) the 4 most common abuse drugs were present in accidental deaths increased 9% from 1994-95 (262). The number of drug overdose deaths with cocaine present (alone or in combination with other drugs) was 109, 30% higher than in 1994-95 (84). The number of overdose deaths with heroin present (measured as morphine) have increased from 47 in 1990-91 to 147 in 1995-96. PCP was not present any accidental deaths. Accidental deaths in which amphetamines were present have decreased 33% from 43 in 1994-95 to 29 in 1995-96.

NOTE: There may be more than one drug present in a case.

TABLE XII. ACCIDENTAL DEATH SITUATIONS BY RACE

	Race				
Method	**White**	**Black**	**Asian**	**Other**	**Total**
Asphyxia / Suffocation	8 (73%)*	1 9%)	2 (18%)	0 (0%)	11
Aspiration	1 (50%)	0 (0%)	1 (50%)	0 (0%)	2
Burns	5 (100%)	0 (0%)	0 (0%)	0 (0%)	5
Drowning	4 (80%)	0 (0%)	1 (20%)	0 (0%)	5
Drug / Alcohol Abuse Related	4 (80%)	1 (20%)	0 (0%)	0 (0%)	5
Drug / Poison	164 (78%)	40 (19%)	1 (0.5%)	5 (2%)	210
Hanging	2 (100%)	0 (0%)	0 (0%)	0 (0%)	2
Falls	32 (67%)	7 (15%)	9 (19%)	0 (0%)	48
Firearms	0 (0%)	1 (100%)	0 (0%)	0 (0%)	1
Head Trauma	2 (67%)	0 (0%)	1 (33%)	0 (0%)	3
Medical Misadventure	10 (77%)	2 (15%)	1 (8%)	0 (0%)	13
Smoke / CO Inhalation	6 (75%)	0 (0%)	2 (25%)	0 (0%)	8
Other	5 (83%)	0 (0%)	1 (17%)	0 (0%)	6
TOTALS	**243 (76%)**	**52 (16%)**	**19 (6%)**	**5 (2%)**	**319**

NOTE: Row percentages refer to percentages by race for each mode. These can be compared to total percentages for each race to see whether a mode is more or less prevalent in a racial group. For instance, deaths from drowning appear to occur more frequently in Asians (20%) than the general involvement of Asians in accidents (6%). Deaths from falls occur less frequently in whites (67%) than would be anticipated, based on the overall involvement of whites in accidental deaths (76%). Deaths due to falls appear to occur more frequently in Asians (19%) than would be anticipated, based on the involvement of Asians in accidental deaths (6%).

RACE OF NON-VEHICULAR ACCIDENT VICTIMS

FISCAL YEAR 1995-96

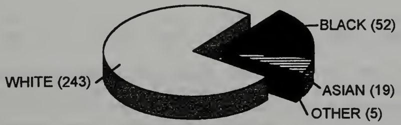


Figure 13.

AGE OF ACCIDENTAL DEATH VICTIMS

FISCAL YEAR 1995-96

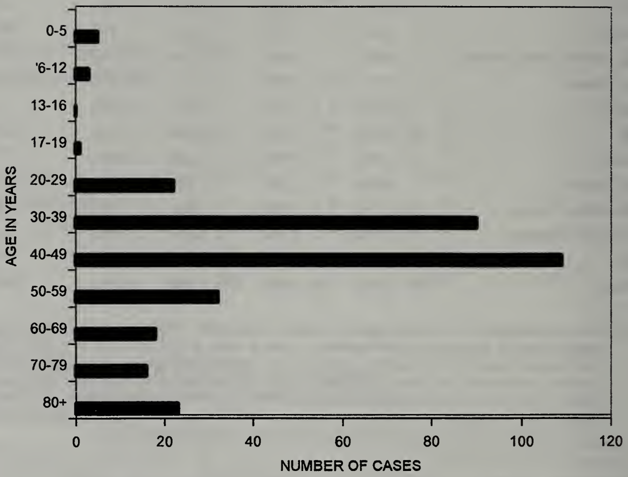


Figure 14.

TABLE XIII. ACCIDENTAL DEATH SITUATIONS BY AGE

Age Range - Years

Method	0-5	6-12	13-16	17-19	20-29	30-39	40-49	50-59	60-69	70-79	80+	Ave. Age
Asphyxia	1 (9%)	0	0	0	0	0	1 (9%)	2 (18%)	1 (9%)	3 (27%)	3 (27%)	63.2
Aspiration	0	0	0	0	1 (50%)	0	1 (50%)	0	0	0	0	38.5
Burns	2 (40%)	0	0	0	0	0	0	0	0	0	3 (60%)	53.3
Drowning	0	0	0	0	0	1 (20%)	1 (20%)	2 (40%)	0	1 (20%)	0	52.4
Drug / Alc. Abuse Rel.	0	0	0	0	0	1 (20%)	4 (80%)	0	0	0	0	42.2
Drug O.D.	0	0	0	1 (0.5%)	18 (9%)	78 (37%)	84 (40%)	21 (10%)	6 (3%)	2 (1%)	0	40.9
Hanging	1 (50%)	0	0	0	0	0	1 (50%)	0	0	0	0	23.4
Falls	0	1 (2%)	0	0	2 (4%)	7 (15%)	8 (17%)	5 (10%)	9 (19%)	7 (15%)	9 (19%)	59.4
Firearms	0	0	0	0	1 (100%)	0	0	0	0	0	0	21.0
Head Trauma	0	0	0	0	0	0	2 (67%)	1 (33%)	0	0	0	46.3
Medical Misadven.	1 (8%)	1 (8%)	0	0	0	0	3 (23%)	1 (8%)	1 (8%)	3 (23%)	3 (23%)	56.3
Smoke/CO Inhalation	0	1 (12%)	0	0	0	1 (12%)	3 (23%)	0	1 (12%)	0	2 (15%)	53.1
Other	0	0	0	0	0	2 (33%)	1 (17%)	0	0	0	3 (50%)	64.2
TOTALS	**5**	**3**	**0**	**1**	**22**	**90**	**109**	**32**	**18**	**16**	**23**	
% Of Total	**(2%)**	**(1%)**	**0**	**(0.3%)**	**(7%)**	**(28%)**	**(34%)**	**(10%)**	**(6%)**	**(5%)**	**(7%)**	

NOTE: Row percents refer to percentage by age range for each mode. These can be compared to total percentages for each age range to see if a mode is more or less prevalent in an age group. For example, burns occurred more frequently in the 0-5 years of age group (40%) than the general involvement of this age group in accidents (2%) while falls in the 30-39 year age group occurred less frequently (15%) than all accidents in this age group (28%). Falls in the age group 60-80+ occurred more frequently (53%) than all accidents in this age group (18%).

TABLE XIV. ACCIDENTAL DEATH SITUATIONS BY SEX

Method	Sex Male	Female
Asphyxia	8 (73%)	3 (27%)
Aspiration	1 (50%)	1 (50%)
Burns	2 (40%)	3 (60%)
Drowning	4 (80%)	1 (20%)
Drug/Alcohol Abuse Related	3 (60%)	2 (40%)
Drug Overdose/ Drug Caused	175 (83%)	35 (17%)
Hanging	1 (50%)	1 (50%)
Falls	31 (65%)	17 (35%)
Firearms	1 (100%)	0 (0%)
Head Trauma	3 (100%)	0 (0%)
Medical Misadventure	6 (46%)	7 (54%)
Smoke / CO Inhalation	6 (75%)	2 (25%)
Other	3 (50%)	3 (50%)
TOTALS	**244**	**75**
% Of Total	**(76%)**	**(24%)**

NOTE: Row percents refer to percentages by sex for each mode. These can be compared to total percentages for each sex to see whether a mode is more or less prevalent in one sex. For example, deaths from falls appear to occur slightly less frequently in males (65%) than the general involvement of males in accidents (76%), while deaths from drug overdoses occur less frequently in females (17%) than all accidents in females (24%).

VEHICULAR DEATHS

In 1995-96, there were 58 vehicular fatalities in San Francisco, a decrease of 22 (28%) from 1994-1995! The number of such fatalities by type are indicated in Figure 15, page 34 and Table XV, page 35. Percentages of all vehicular fatalities by type are shown in Table XV, page 35. The largest number of vehicular fatalities involved pedestrians; the second largest number involved automobile drivers. Automobile driver fatalities decreased 32% from 19 in 1994-95 to 13 in 1995-96. Motorcycle driver fatalities increased by one from 6 to 7 from 1994-95 to 1995-96. Pedestrian fatalities decreased from 36 in 1994-95 to 27 in 1995-96.

Of the vehicular fatalities tested for alcohol (i.e. those in the hospital for less than 24 hours), pedestrians had the highest average blood ethyl alcohol concentration (0.23%).

Abuse Drug Involvement (Table XVI, page 35)

Cocaine and Amphetamines were the abuse drugs seen most frequently in vehicular fatalities (2 times and one time respectively). The number of times abuse drugs were found in vehicular fatalities was 4 during 1994-95, 5 during 1993-94, and 10 in 1991-92.

Age Distribution (Table XVII, page 36, Table XVIII, page 37, and Figure 16, p. 36)

The average age of motorcycle drivers was 25 years as compared to the average age of auto drivers (47 years) who were vehicular fatalities during 1995-96. The mean age of pedestrians (57) was the highest seen for any type of traffic fatality with the 50+ year age group being overrepresented in the pedestrian fatalities (60%) as compared to the overall involvement of this age group in all types of traffic fatalities (43%).

Distribution by Sex (Table XVIII, page 37)

Overall, Males were the predominant victims of vehicular fatalities (67%)

Racial Distribution (Table XVIII and Figure 17, page 37)

Overall, vehicular fatalities occur most frequently in white non-Hispanics (57%). Asians were represented more heavily among deaths of auto passengers (50%) and pedestrians (33%) than would be expected by their involvement in all vehicular fatalities (28%). Blacks were most heavily represented among auto driver fatalities (8%) during 1995-96.

VEHICULAR DEATHS

In San Francisco, there were 58 vehicle-related fatalities (53 accidents, 2 homicides 2 suicide, and 1 ruled to be mode undetermined) accounting for 3% of the Medical Examiner death investigations for the fiscal year 1995-96.

TYPES OF VEHICULAR DEATHS

FISCAL YEAR 1995-96

Figure 15.

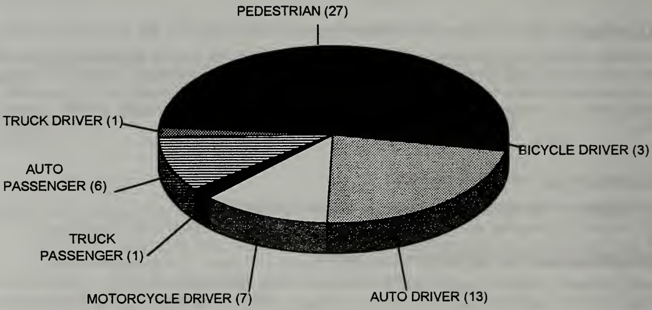


TABLE XV. VEHICULAR FATALITIES IN 1995-1996

Drug and Alcohol Involvement

Method	Number	% With Alcohol*	Ave. Alc. Conc. (g%)	% With Drugs**	% With Drugs and Alcohol.
Pedestrian	27 (47%)	26	0.23	0	-
Auto Driver	13 (22%)	18	0.16	11	0
Auto Passenger	6 (10%)	17	0.08	17	0
Motorcycle Driver	7 (12%)	29	0.15	0	-
Bicycle Driver	3 (5%)	0	-	0	-
Truck Driver	1 (2%)	0	-	0	-
Truck Passenger	1 (2%)	0	-	100	0

* Refers to percentages of victims (of those tested) with positive blood ethyl alcohol levels.
** Refers to percentage of victims (of those tested) with positive blood tests for abuse drugs.

TABLE XVI. ABUSE DRUGS PRESENT IN VEHICULAR FATALITIES

	Drugs			
Situation	Cocaine	PCP	Heroin	Amphetamines
Pedestrian	0	0	0	0
Auto Driver	1	0	0	0
Auto Passenger	1	0	0	0
Motorcycle Driver	0	0	0	0
Bicycle Driver	0	0	0	0
Truck Driver	0	0	0	0
Truck Passenger	0	0	0	1
TOTALS	**2**	**0**	**0**	**1**

TABLE XVII. VEHICULAR FATALITIES BY AGE

	Age Range - Years										
Situation	**0-5**	**6-12**	**13-16**	**17-19**	**20-29**	**30-39**	**40-49**	**50-59**	**60-69**	**70-79**	**80+**
Auto Driver	0	0	0	1 (8%)	4 (31%)	3 (23%)	0	0	0	3 (23%)	2 (15%)
Auto Passenger	0	0	1 (17%)	1 (17%)	0	0	1 (17%)	0	0	2 (33%)	1 (17%)
Motorcycle Driver	0	0	0	0	6 (86%)	1 (14%)	0	0	0	0	0
Pedestrian	0	0	2 (7%)	0	0	5 (19%)	4 (15%)	3 (11%)	0	8 (30%)	5 (19%)
Bicycle Driver	0	0	0	0	1 (33%)	1 (33%)	0	0	0	1 (33%)	0
Truck Driver	0	0	0	0	0	1 (100%)	0	0	0	0	0
Truck Passenger	0	0	0	0	0	0	1 (100%)	0	0	0	0
TOTALS **% Of Totals**	**0** **(0%)**	**0** **(0%)**	**3** **(5%)**	**2** **(3%)**	**11** **(19%)**	**11** **(19%)**	**6** **(10%)**	**3** **(5%)**	**0** **(0%)**	**14** **(24%)**	**8** **(14%)**

NOTE: Row percents refer to percentages by age group for each situation. These can be compared to total percentages for each age group to see if a situation is more or less prevalent in any age group. For example, accidental deaths of automobile drivers in the 20-29 year age group occur more frequently (31%) than the general involvement of this age group in vehicular fatalities (19%). It is significant that 49% of pedestrian fatalities and 38% of auto driver fatalities occur in individuals 70 or more years of age. Also, deaths of motorcycle drivers occur almost exclusively in the 20-29 year age group (86%) as compared to the general involvement of this age group in vehicular fatalities (19%).

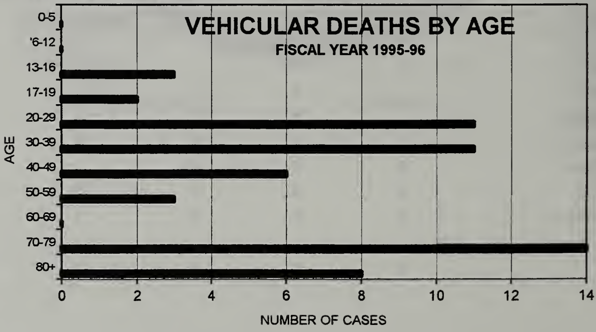


Figure 16.

TABLE XVIII. DEMOGRAPHICS OF VEHICULAR FATALITIES

	Sex		Race					Age
Situation	**% M**	**% F**	**% W-NH**	**%W-H**	**%B-NH**	**%A**	**%O**	**Average**
Auto Driver	77	23	62	8	8	23	0	47
Auto Passenger	50	50	33	17	0	50	0	52
Motorcycle Driver	100	0	71	14	0	14	0	25
Pedestrian	56	44	52	7	3	33	3	57
Bicycle Driver	100	0	67	33	0	0	0	45
Truck Driver	100	0	100	0	0	0	0	39
Truck Passenger	0	100	100	0	0	0	0	47
Average	**67**	**33**	**57**	**10**	**3**	**28**	**2**	**49**

The most notable change in demographics of vehicular fatalities from fiscal year 1994-95 was a continued decrease in the percentage of pedestrians who were black, from 34% in 1993-94 to 6% in 1994-95 to 3% in 1995-96.

RACE OF VEHICULAR DEATH VICTIMS
FISCAL YEAR 1995-96

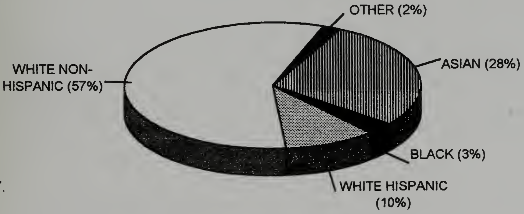


Figure 17.

SUICIDES

The determination of suicide as a manner of death represents the summation of scene investigation, including a review of psychological state, autopsy, pathology, toxicology and, frequently, other investigation. To the best of our knowledge, ours is the only Medical Examiner's Office routinely performing toxicology testing on multiple organs and/or body fluids in order to evaluate the metabolic status of a drug or drugs.

Realizing the immense emotional impact on family, the diagnosis of suicide is never made lightly, and always represents a decision made on the basis of data sufficient to defend that decision in a court of law, if necessary. Should these data be inconclusive, the victim automatically gets the benefit of the doubt.

Suicide takes a tremendous toll of our young people. The relative number jumping from the Golden Gate Bridge would not seem to warrant the publicity assigned them as compared to the evident need for help for individuals using other methods.

To help understand the problem, and hopefully, to aid in reduction of suicides, this office has supported suicide prevention and research programs for many years. It is hoped that this work will help to reduce this needless loss.

The majority of these deaths are situational reactions, and, if given momentary trained support, are potentially preventable.

SUICIDAL DEATHS

One hundred and fifty-eight deaths were ruled to have been due to suicide during the 1995-96 fiscal year. Of these, 2 were vehicular deaths and are discussed in the "Vehicular Deaths" Section. The other suicide deaths are the basis for the tabulations in this Section. The number of individuals dying by each method of suicide are presented in Figure 18, page 41, and Table XIX, page 42, and the percentages of all suicidal deaths by type are indicated in Table XIX, page 42, along with alcohol and drug involvement for each mode.

Abuse Drug Involvement (Table XX, page 42)

Abuse drugs were present 26 times in suicidal deaths in 1995-96 as compared to 15 times in 1994-95. The abuse drugs seen most frequently in suicidal deaths were cocaine (12 times) and morphine (8 times). This contrasts with 4 cases of suicide with cocaine present in 1994-95. Heroin (measured as morphine) was found in 5 cases of suicidal death in 1994-95. Abuse drugs were associated more frequently with deaths caused by drug overdose and by firearms than with any other mode of suicide.

Racial Distribution (Table XXI and Figure 19, page 43)

Deaths from suicide occurred most frequently in whites (77% of total suicides). The white racial group has been divided into Hispanic and non-Hispanic in this tabulation. It can be seen that the white Hispanic group was involved in only 6% of all suicides but in 21% of all suicides by hanging. Suicide by firearms was used more frequently by blacks (13%) than would have been expected by the overall percentage of suicides by blacks (6%).

Age Distribution (Table XXII, page 44, Table XXIII, page 45 and Figure 20, page 45)

There were no deaths by suicide in the 13-16 year age group during this fiscal year as compared to 1 in 1994-95. There were 5 suicides in the 17-19 year age group as compared to 2 in 1994-95 and 2 in 1993-94. There was a large increase (from 27 to 39) in the number of suicides in the 40-49 year age group, the highest number in the last nine fiscal years. This age group has the highest percentage of suicides of any age group with deaths from drug overdoses and firearms being particularly prevalent. Death by firearms appears to be the mode of suicide used most frequently by older adults with 40% of the deaths of those over age 60 being due to this mode.

Distribution by Sex (Table XXIV, page 46)

Males were more likely than females to commit suicide in 1995-96 (85% male, 15% female).

SUICIDES

Suicides are self-inflicted deaths. In San Francisco, the 156 suicides which are being tabulated account for 8.7% of the Medical Examiner death investigations for the fiscal year of 1995-96.

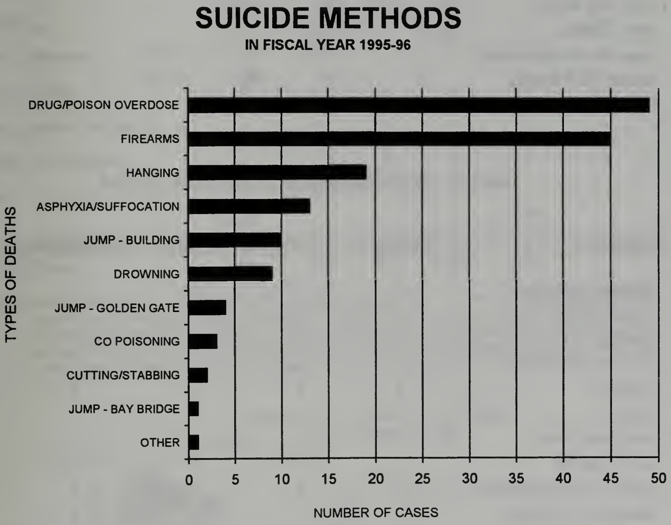


Figure 18.

TABLE XIX. SUICIDAL DEATHS BY MODE

Method	Number	% Of Total Suicides	% With Alcohol	Ave. Alcohol Conc. (g%)	% With Abuse Drugs
		Abuse Drug and Alcohol Involvement			
Asphyxia / Suffocation	13	8.3	46	0.18%	0
Cutting / Stabbing	2	1.3	50	0.10%	0
Drowning	9	5.8	22	0.11%	0
Drug / Poison Overdose	49	31.4	52	0.14%	15
Firearms	45	28.8	40	0.13%	24
Hanging	19	12.2	16	0.23%	13
Jump - Bay Bridge	1	0.6	0	-	0
Jump - Building	10	6.4	0	-	14
Jump - Golden Gate Bridge	4	2.6	25	0.08%	33
Smoke / CO Poisoning	3	1.9	100	0.14%	0
Other	1	0.6	0	-	0

TABLE XX. ABUSE DRUGS PRESENT IN SUICIDAL DEATHS

	Drugs			
Situation	Cocaine	PCP	Morphine	Amphetamines
Asphyxia / Suffocation	0	0	0	0
Cutting / Stabbing	0	0	0	0
Drowning	0	0	0	0
Drug / Poison Overdose	6	0	4	1
Firearms	5	0	2	2
Hanging	1	0	2	1
Jump - Bay Bridge	0	0	0	0
Jump - Building	0	0	0	1
Jump - Golden Gate Bridge	0	0	0	1
Smoke / CO Poisoning	0	0	0	0
Other	0	0	0	0
TOTALS	**12**	**0**	**8**	**6**

TABLE XXI. SUICIDE METHODS BY RACE

	Race					
Method	**W-NH**	**W-H**	**B-NH**	**ASIAN**	**OTHER**	**TOTALS**
Asphyxia / Suffocation	13 (100%)	0	0	0	0	13
Cutting / Stabbing	1 (50%)	1 (50%)	0	0	0	2
Drowning	3 (33%)	0	2 (22%)	4 (44%)	0	9
Drug / Poison Overdose	42 (86%)	1 (2%)	2 (4%)	3 (6%)	1 (2%)	49
Firearms	31 (69%)	3 (7%)	6 (13%)	5 (11%)	0	45
Hanging	9 (47%)	4 (21%)	0	6 (32%)	0	19
Jump - Bay Bridge	1 (100%)	0	0	0	0	1
Jump - Building	4 (40%)	1 (10%)	0	4 (40%)	1 (10%)	10
Jump - Golden Gate Bridge	4 (100%)	0	0	0	0	4
Smoke / CO Poisoning	3 (100%)	0	0	0	0	3
Other	0	0	0	0	1 (100%)	1
TOTAL NUMBER **% OF TOTALS**	**111** **(71%)**	**10** **(6%)**	**10** **(6%)**	**22** **(14%)**	**2** **(1%)**	**156**

NOTE: Row percentages refer to percentages by race for each method. These can be compared to total percentages for each race to see whether a method is more or less prevalent in a racial group. For instance, suicides by hanging appear to occur more frequently in Asians (32%) than the general involvement of Asians in suicides (14%), and deaths by hanging in white non-Hispanics (47%) occur less frequently than all suicides in white non-Hispanics (71%).

RACE OF SUICIDE VICTIMS

FISCAL YEAR 1995-96

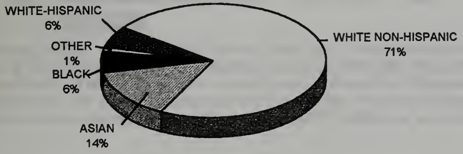


Figure 19.

TABLE XXII. SUICIDE METHODS BY AGE

Age Range - Years

Method	13-16	17-19	20-29	30-39	40-49	50-59	60-69	70-79	80-89	90 +
Asphyxia / Suffoc.	0	0	0	3 (23%)	3 (23%)	4 (31%)	2 (15%)	1 (8%)	0	0
Cutting / Stabbing	0	0	1 (50%)	0	1 (50%)	0	0	0	0	0
Drowning	0	1 (11%)	1 (11%)	1 (11%)	2 (22%)	1 (11%)	0	0	2 (22%)	1 (11%)
Drug / Poison OD	0	0	7 (14%)	11 (22%)	14 (29%)	10 (20%)	4 (8%)	2 (4%)	1 (2%)	0
Firearms	0	1 (2%)	8 (18%)	5 (11%)	11 (24%)	6 (13%)	4 (9%)	8 (18%)	2 (4%)	0
Hanging	0	2 (11%)	3 (16%)	4 (21%)	3 (16%)	3 (16%)	2 (11%)	2 (11%)	0	0
Jump - Bay Bridge	0	0	0	0	0	1 (100%)	0	0	0	0
Jump - Building	0	1 (10%)	0	1 (10%)	3 (30%)	2 (20%)	1 (10%)	1 (10%)	1 (10%)	0
Jump - G. G. Bridge	0	0	1 (25%)	2 (50%)	0	1 (25%)	0	0	0	0
Smoke / CO Poisoning	0	0	0	0	1 (33%)	1 (33%)	0	0	1 (33%)	0
Other	0	0	0	0	1 (100%)	0	0	0	0	0
TOTAL NUMBER	**0**	**5**	**21**	**27**	**39**	**29**	**13**	**14**	**7**	**1**
% OF TOTAL		**(3%)**	**(13%)**	**(17%)**	**(25%)**	**(19%)**	**(8%)**	**(9%)**	**(4%)**	**(0.6%)**

NOTE: Row percents refer to percentage by age range for each method. These can be compared to total percentages for each age range to see if a method is more or less prevalent in an age group. For example, death by firearms appears to occur more frequently in the 70-79 years of age group (18%) than the general involvement of this age group in suicides (9%) while deaths by hanging in the 17-19 year age group (11%) occur more frequently than all suicides in this age group (3%).

SUICIDES

TABLE XXIII. AGE RANGES - COMPARISON BY YEAR

Age Range Years	'87-88	'88-89	'89-90	'90-91	'91-92	'92-93	'93-94	'94-95	'95-96
0 - 19	6	3	1	2	6	2	5	3	5
20 - 29	36	30	18	20	28	14	30	18	21
30 - 39	28	33	39	37	34	32	31	29	27
40 - 49	24	28	30	23	30	36	20	27	39
50 - 59	23	22	12	29	14	13	23	18	29
60 - 69	19	19	11	15	12	12	12	11	13
70 - 79	17	21	6	19	17	14	7	9	14
80 - 89	5	11	7	8	9	8	7	7	7
90 - 99	4	3	4	1	3	1	1	2	1
Unknown	0	1	0	0	0	0	0	0	0

Figure 20.

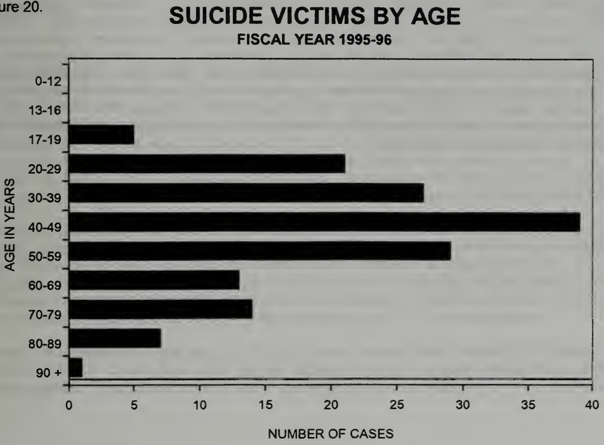


TABLE XXIV. SUICIDE METHODS BY SEX

Method	Sex Male	Female
Asphyxia / Suffocation	9 (69%)	4 (31%)
Cutting / Stabbing	2 (100%)	0 (0%)
Drowning	6 (67%)	3 (33%)
Drug / Poison Overdose	42 (86%)	7 (14%)
Firearms	43 (96%)	2 (4%)
Hanging	14 (74%)	5 (26%)
Jump - Bay Bridge	1 (100%)	0 (0%)
Jump - Building	8 (80%)	2 (20%)
Jump - Golden Gate Bridge	4 (100%)	0 (0%)
Smoke / CO Poisoning	3 (100%)	0 (0%)
Other	0 (0%)	1 (100%)
TOTALS	**132 (85%)**	**24 (15%)**

NOTE: Row percents refer to percentages by sex for each mode. These can be compared to total percentages for each sex to see whether a mode is more or less prevalent in one sex. For example, deaths by firearms appear to occur more frequently in males (96%) than the general involvement of males in suicides (85%), while females die by hanging more frequently (26%) than all suicides in females (15%).

HOMICIDE

Homicide is the killing of one human being by another. Murder is the unlawful killing of a human being with malice. The following data do not differentiate homicide as to whether it was justifiable, accidental, or murder. Such distinctions are the proper function of the judicial system and are not the responsibility or function of this office.

Any judicial system which deals with crimes involving death requires a well- trained staff and well-equipped Medical Examiner's Office which can and will interpret forensic findings in an unbiased, fair manner. Their investigation must be intense, accurate and rapid enough so that charges may be pursued or dismissed without unfairly affecting an individual's constitutional rights. This is the purpose of this office.

The proper evaluation and investigation of a homicide begins, naturally, at the scene. In the majority of cases, a staff member of this office (either the Investigator, Administrative Coroner, or Medical Examiner), determines whether a death is potentially a homicide. It has been well-documented that, if such a determination is made by an individual inexperienced or untrained in death investigation, his opinion will be wrong in 50% of the cases. Such a person is very apt to miss the subtle homicide and is more inclined to miscall a natural or accidental death as homicide, resulting in false arrest, false accusations, needless expenditure of public funds, waste of investigative time and delay in the investigation of other deaths.

The Investigator responds to the scene of death and determines whether the Police Homicide Detail will be called. When homicide is obvious, the Investigator responds as part of a team (other members include homicide investigators, photographers and criminologists). This office is responsible for the body, identification, inquiry into circumstances, manner and means of death (Gov. Code 27491.2). In addition to the scene investigation, the Investigator is responsible for recovering property, locating and notifying next of kin, and preparing a written summary of his/her investigation.

In about one-third to one-half of all homicides, a forensic pathologist will respond to the scene and aid in the investigation. The subsequent autopsy may also use photography, fluoroscopy, X-ray, angiography and other techniques to establish and define the number, nature and severity of wounds, to obtain evidence (i.e. bullets) and to prepare an official report. This report, including chemistry, serology and toxicology results, is used as part of the prosecution or defense of the case in the formal judicial hearing.

Pertaining to criminal trial, our judicial system requires identification of an individual and presentation of evidence, usually by virtue of expert testimony, relative to the cause of death or trauma associated with death. The Medical Examiner's Office identifies the body, frequently relying on local police, CII, or FBI fingerprints. Expert forensic testimony is given by the Forensic Pathologist from this office. In addition, the Forensic Toxicologist is frequently called upon to testify on the significance and effect of various drug levels, a matter of great importance when dealing with the concept of diminished capacity.

Of minor, but increasing importance, is the fact we are seeing more homicide and trauma cases transferred into the County for medical therapy because of San Francisco's excellent and advanced medical facilities. Should these individuals die, the autopsy and court testimony are done by this office.

HOMICIDE DEATHS

One hundred deaths were ruled to have been due to homicide during the 1995-96 fiscal year. Of these, 2 were vehicular homicides and have been discussed in the "Vehicular Deaths" section. The remaining 98 homicide deaths are the basis for the tabulations in this section. The numbers of individuals dying by each manner of death are indicated in Figure 21, page 49 and Table XXV, page 50; percentages of all homicides represented by specific methods are indicated in Table XXV, page 50. The total number of non-vehicular homicides increased by 4% from 94 in 1994-95 to 98 in 1995-96. The number of homicide deaths by firearms decreased 13%, from 68 to 59. Of the homicide victims tested for alcohol and drugs (those in the hospital for less than 24 hours), about 31% had positive blood alcohol levels; more than 40% had drugs present. The percent of homicide victims with positive blood tests for drugs varied with the method of homicide with more than 50% of those dying either by firearms or stabbing having drugs present.

Abuse Drug Involvement (Table XXVI, page 50)

Cocaine was the abuse drug seen most frequently in homicide victims, being present in 38 homicide cases as compared to 29 such cases in 1994-95. Cocaine was associated most strongly with deaths by gunshot wound, with 23 of the 38 cases with cocaine present (61%) being deaths due to gunshot wounds. Stabbing was the homicide method which was associated with drugs next most frequently; cocaine was present in 6 cases who died by stabbing. The number of homicide cases with amphetamines present doubled from 3 in 1994-95 to 6 in 1995-96.

Racial Distribution (Table XXVII and Figure 22, page 51)

Deaths by homicide occurred almost as frequently in blacks (37%) as in whites (38%). Deaths by stabbing occurred more frequently in white Hispanics (38%) than would have been predicted by the overall involvement of white Hispanics in homicides (21%). Most deaths resulting from firearms (47%) occurred in blacks.

Age Distribution (Figure 23, page 52, Tables XVIII and XXIX, page 53 and Table XXXI, page 54)

There were 8 homicides in the 0-19 year age group, a decrease of 56% from 1994-95 to the lowest number in the last nine fiscal years. Death by firearms accounted for 6 or 75% of these homicides. The peak occurrence of deaths due to firearms was in the 20-29 year age group. Of deaths due to firearms, 69% were in the 20-39 year age group as were 69% of the stabbing deaths. As can be seen from Table XXXI, the mean age of homicide victims varies with the mode, with no clear pattern observed for either males and females for any mode.

Distribution by Sex (Table XXX, page 54)

Males were more than 3 times as likely to be homicide victims as females.

NON-VEHICULAR HOMICIDES

Homicides are those deaths caused by another person, generally resulting in murder and manslaughter charges. In San Francisco, 98 non-vehicular homicides occurred in 1995-96, accounting for 5.5% of the total Medical Examiner investigations.

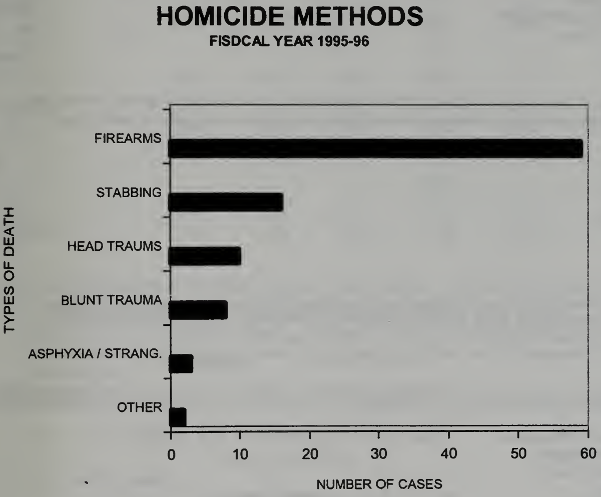


Figure 21.

TABLE XXV. HOMICIDAL DEATHS BY MODE

Abuse Drug and Alcohol Involvement

Method	Number	% Of Total Homicides	% With Alcohol *	Ave. Alcohol Conc. (g%)	% With Drugs **
Firearms	59	60	30	0.13	50
Stabbing	16	16	44	0.10	56
Blunt Trauma	8	8	50	0.18	63
Asphyxia / Strangulation	3	3	0	-	33
Head Trauma	10	10	25	0.05	38
Other	2	2	0	-	0

* Refers to percentage of victims (of those tested) with positive blood ethyl alcohol concentrations

** Refers to percentage of victims (of those tested) with positive blood tests for abuse drugs.

TABLE XXVI. DRUGS PRESENT IN NON-VEHICULAR HOMICIDAL DEATHS

	Drugs			
Situation	**Cocaine**	**PCP**	**Heroin**	**Amphetamines**
Asphyxia / Strangulation	1	0	0	0
Traumatic Injuries	5	0	1	1
Gunshot Wound	23	2	11	2
Stabbing	6	0	0	3
Head Injury	3	0	1	0
TOTALS	**38**	**2**	**13**	**6**

TABLE XXVII. HOMICIDE METHODS BY RACE

	Race					
Method	**W-NH**	**W-H**	**B-NH**	**Asian**	**Other**	**TOTAL**
Asphyxia / Strangulation	1 (33%)	0	1 (33%)	1 (33%)	0	**3**
Head Trauma	5 (50%)	1 (10%)	2 (20%)	2 (20%)	2 (20%)	**10**
Firearms	8 (14%)	12 (20%)	28 (47%)	9 (15%)	2 (3%)	**59**
Stabbing	1 (6%)	6 (38%)	4 (25%)	4 (25%)	1 (6)	**16**
Blunt Trauma	2 (25%)	2 (25%)	1 (12%)	1 (12%)	2 (25%)	**8**
Other	0	0	0	2 (100%)	0	**2**
TOTALS **% OF TOTAL**	**17** **17%**	**21** **21%**	**36** **37%**	**19** **19%**	**5** **5%**	**98**

NOTE: Row percentages refer to percentages by race for each method. These can be compared to total percentages for each race to see whether a method is more or less prevalent in a racial group. For instance, death by stabbing appears to occur less frequently in white non-Hispanics (6%) than the general involvement of white non-Hispanics in homicides (17%) while deaths due to stabbing appear to occur more frequently in white-Hispanics (38%) than all homicides in white-Hispanics (21%).

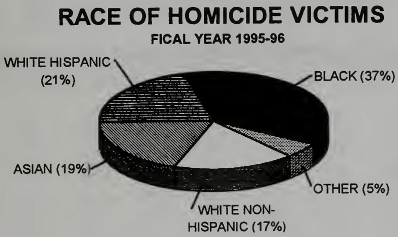


Figure 22.

HOMICIDE VICTIMS BY AGE

FISCAL YEAR 1995-96

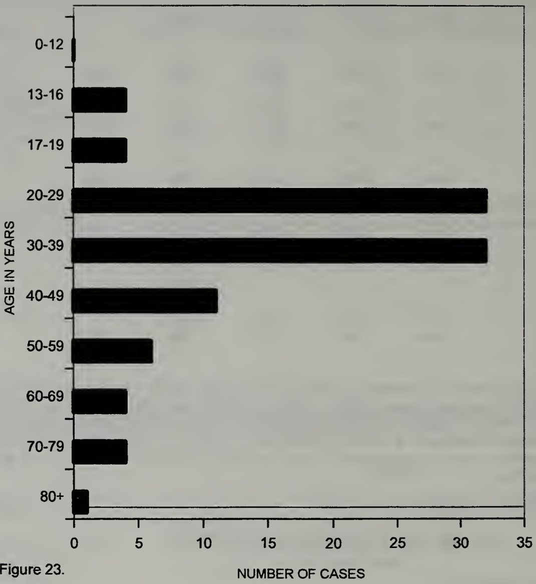


Figure 23.

TABLE XXVIII. HOMICIDE METHODS BY AGE

Age Range - Years

Method	0-12	13-16	17-19	20-29	30-39	40-49	50-59	60-69	70-79	80+	Unk.
Asphyxia / Strangulation	0	0	0	0	1 (33%)	1 (33%)	0	0	1 (33%)	0	0
Head Trauma	0	0	0	2 (20%)	3 (30%)	2 (20%)	0	1 (10%)	1 (10%)	1 (10%)	0
Firearms	0	2 (3%)	4 (7%)	24 (41%)	17 (29%)	7 (12%)	2 (3%)	1 (2%)	2 (3%)	0	0
Blunt Trauma	0	0	0	1 (12%)	4 (50%)	0	2 (25%)	1 (12%)	0	0	0
Stabbing	0	2 (12%)	0	4 (25%)	7 (44%)	1 (6%)	2 (12%)	0	0	0	0
Other	0	0	0	1 (50%)	0	0	0	1 (50%)	0	0	0
TOTALS **% OF TOTALS**	**0** **0%**	**4** **(4%)**	**4** **(4%)**	**32** **(33%)**	**32** **(33%)**	**11** **(11%)**	**6** **(6%)**	**4** **(4%)**	**4** **(4%)**	**1** **(1%)**	**0**

NOTE: Row percents refer to percentage by age range for each method. These can be compared to total percentages for each age range to see if a method is more or less prevalent in an age group. For example, deaths by stabbing occur more frequently in the 13-16 year age group (12%) than the general involvement of this age group in homicides (4%) while deaths by head trauma occur less frequently in the 20-29 year age group (20%) than all homicides in this age group (33%).

TABLE XXIX. HOMICIDE VICTIMS

AGE RANGES - COMPARISON BY YEAR

Fiscal Year

Age Range Years	'87-'88	'88-'89	'89-'90	'90-'91	'91-'92	'92-'93	'93-'94	'94-'95	'95-'96
0-19	16	18	16	13	19	16	11	18	8
20-29	28	31	28	37	39	49	53	34	32
30-39	41	28	28	27	32	25	26	23	32
40-49	12	15	15	12	17	14	12	12	11
50-59	13	9	6	5	10	13	8	4	6
60-69	8	4	5	5	0	3	4	2	4
70+	5	2	6	5	6	7	4	0	5

TABLE XXX. HOMICIDE METHODS BY SEX

Method	Sex	
	Male	Female
Asphyxia / Strangulation	2 (67%)	1 (33%)
Head Trauma	6 (60%)	4 (40%)
Firearms	48 (81%)	11 (19%)
Blunt Injury	6 (75%)	2 (25%)
Stabbing	15 (94%)	1 (6%)
Other	0 (0%)	2 (100%)
TOTALS	**77 (79%)**	**21 (21%)**

NOTE: Row percents refer to percentages by sex for each mode. These can be compared to total percentages for each sex to see whether a mode is more or less prevalent in one sex. For example, deaths by stabbing occur less frequently in females (6%) than the general involvement of females in homicides (21%), while deaths by stabbing in males (94%) occur more frequently than all homicides in males (79%).

TABLE XXXI. MEAN AGE FOR HOMICIDE VICTIMS BY METHOD AND SEX
(Age in Years)

Method	Male	Female
Asphyxia / Strangulation	52	42
Head Trauma	34	64
Firearms	29	42
Blunt Trauma	46	30
Stabbing	32	43
Other	-	43

The lowest mean age for **males** was seen in deaths from firearms.
The lowest mean age for **females** was seen in death by blunt trauma.

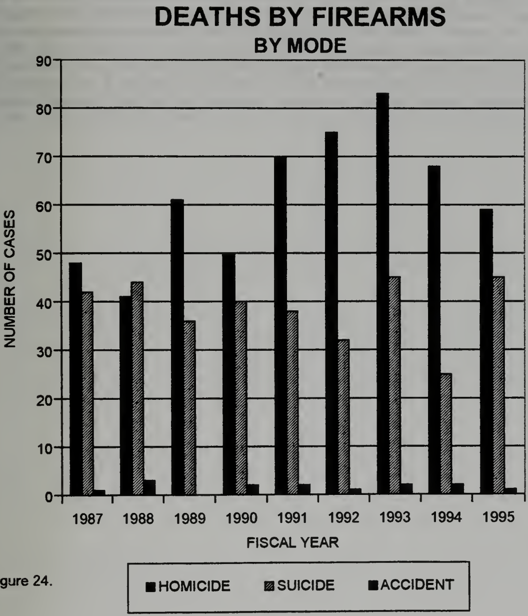

DEATHS BY FIREARMS
BY MODE
NUMBER OF CASES
90
80
70
60
50
40
30
20
10
0
1987
1988
1989
1990
1991
1992
1993
1994
1995
FISCAL YEAR
■ HOMICIDE
▨ SUICIDE
■ ACCIDENT

Figure 24.

PATHOLOGY

In the **Pathology Department**, tissue and body fluid samples taken at autopsy are prepared for microscopic study, histochemically stained, or analyzed for chemical constituents. Cardiac pacemakers or other mechanical life-support devices are examined for any defect. Smears or "wet-mounts" are examined for spermatozoa, bacteria, or tuberculosis. Bacteriologic cultures may be taken. However, if pathogens are grown, they are usually sent to the Department of Public Health (State or local) for further identification. If indicated, "soft" X-rays or histochemical tests are done to establish entrance or exit gunshot wounds. New research techniques, such as methods of obtaining fingerprints from the skin of a victim, are developed here also.

MONTHLY FIGURES

Fiscal Year 1995-1996

PATHOLOGY*

Year	Total Med-Exam Cases	Cases Referred to Pathologist	No. of Organs Submitted	No. of Section Taken	Histo-Pathologic Slides Made	Special Stains **	Blood Typing ***	Othe Deten natio ****
1995								
July	139	79	517	910	644	75	12	8
Aug.	134	85	531	1082	494	57	11	7
Sept.	152	91	416	752	331	25	8	3
Oct.	135	86	532	835	497	45	11	7
Nov.	136	82	488	941	460	35	8	4
Dec.	175	109	1,000	1637	821	88	15	5
1996								
Jan.	178	93	520	1423	668	68	17	3
Feb.	153	87	543	1359	501	394	11	6
Mar.	154	80	401	778	384	43	13	8
April	152	89	537	941	459	54	11	9
May	135	85	539	1079	363	65	6	14
June	144	85	494	885	446	59	10	5
TOTALS	**1,786**	**1,051**	**6,518**	**12,622**	**6,068**	**1,008**	**134**	**81**

* These figures do not reflect photography, forensic radiology, or material prepared for teaching forensic p

** Includes smears examined for bacteria and spermatozoa

*** ABO and Anti-Rh typing + blood drawings

**** Blood, urine, water, evidence for: hematology, biochemistry, urinalysis, bacteriology, serology, "Sickled etc. + blood drawing

TOXICOLOGY

Toxicology is the study of the interaction of foreign compounds, such as drugs, with living organisms (e.g. people). It involves knowing something of the nature of that interaction, how the foreign compounds break down (that is, how they are metabolized), and what effects they have on the health and behavior of the organism.

All of this information is vital to the role that toxicology plays in determining the cause of death, as well as in evaluating the significance of chemicals found in the living.

Generated within the Toxicology Department is information on samples from Medical Examiner's cases as well as from suspects in criminal cases (e.g. homicides, driving under the influence, probation failure, (H & S 11550), assaults) and other persons to be tested at the request of various law enforcement agencies. The data obtained in these cases enable the toxicologist to assist in interpreting the behavior of the suspects involved, to advise the District Attorney, the Public Defender, the City Attorney, Police Department, the California Highway Patrol, and other agencies, and to give expert testimony in court as necessary in such cases as to the effect of drugs in the case. This application of toxicological facts to legal problems is Forensic Toxicology.

The Toxicology Department also performs analyses on samples submitted by the Police and Fire Departments in connection with the recruitment programs and other personnel requirements. The results in some cases are presented to the respective commission in official hearings.

Toxicological facts are determined through tests performed on biological samples (e.g. blood, urine, gastric contents, liver, etc.) taken at the time of autopsy or from living persons. The samples are subjected to a series of chemical manipulations designed to extract any drugs or other physiologically active compounds that may be present. The subsequent extracts are then examined by equipment set up to detect, accurately identify, and quantitate any materials that may be present. These determinations must be of unquestionable accuracy and as specific as scientifically possible, and they must be able to stand up to review by any other qualified laboratory in the nation.

The analytical methods most commonly used in the toxicological studies are gas and thin layer chromatography; ultraviolet, visible, and fluorescence spectrophotometry; and immunoassay techniques. Advanced techniques, such as mass spectrometry and HPLC (High Performance Liquid Chromatography) are used as necessary for confirmation of difficult samples. These precise and sophisticated methods require the use of advanced laboratory apparatus and highly trained personnel.

Levels of drugs in two or more body compartments (one of which is invariably blood) are routinely determined in order to answer the question of whether the drug use is acute or chronic. This approach is of the utmost importance in determining the time of ingestion and whether or not the intent of the ingestion was suicide.

The range of drugs available to the public is extremely wide, and the nature and type of compounds involved are highly variable. The methodologies necessary to conduct toxicological analyses have to be similarly wide-ranging and also continually expanded in order to keep up with the manufacture of new drugs, both legal and illegal. This is an important aspect of the Toxicology Department's work, often requiring extensive research. So, too, does the identification of "street-manufactured" compounds which are sometimes found in postmortem samples. Also, with many drugs being compounded to have physiologic effects at very low doses, detection in body fluids is often extremely difficult.

The most common drugs in the community are alcohol and prescription items. However, illegal, or "street", drugs (especially morphine-type alkaloids [e.g. heroin], cocaine, and amphetamines) represent a very significant percentage of the compounds actually found in the cases presented to the Toxicology Department. Less commonly used drugs, industrial materials, certain gases, and various other foreign compounds have also been detected.

TOXICOLOGY - MEDICAL EXAMINER'S CASES

July 1995 - June 1996

Incidence of drugs and other physiologically active material detected

The compounds listed are not necessarily the cause of death nor even a contributing factor. They are the toxic agents that were found to be present, either singly or in combination, in Medical Examiner's cases.

ABUSE DRUGS

Cocaine	175
Benzoylecgonine	185*
Morphine-type alkaloids	241
Codeine	154
Methamphetamine	50
Amphetamine	47
Phencyclidine (PCP)	3

ANTI-DEPRESSANTS

Amitriptyline (Elavil)	40
Nortriptyline (Aventyl)	48
Desipramine (Norpramin)	6
Imipramine (Tofranil)	3
Doxepin (Sinequan)	7
Fluoxetine (Prozac)	13
Trazodone (Desyrel)	6
Sertraline (Zoloft)	11
Clomipramine (Anafranil)	1

* Benzoylecgonine is not a drug of abuse. It is a metabolite of cocaine and is generally present when cocaine is detected. In some cases, benzoylecgonine, but not cocaine, was found which indicated that there had been some exposure to cocaine.

ANALGESICS - NARCOTIC

Methadone	33
Methadone Metabolite	32
Propoxyphene (Darvon)	14
Norpropoxyphene	16
Hydrocodone	10
Meperidine (Demerol)	4
Hydromorphone	1
Oxycodone	5
Fentanyl	3

ANALGESICS - NON-NARCOTIC

Acetaminophen	20
Salicylates	1
Pentazocine (Talwin)	1

CARDIAC DRUGS

Lidocaine	66
Metoprolol	1
Atenolol	1

SEDATIVE-HYPNOTICS

Barbiturates

Secobarbital	7
Pentobarbital	3
Phenobarbital	9
Butalbital	2

ANTIHISTAMINES

Diphenhydramine (Benadryl)	52
Doxylamine	6
Promethazine (Phenergan)	9
Chlorpheniramine	5

DECONGESTANTS

Phenylpropanolamine	3

BRONCHODILATORS

Ephedrine	11
Pseudoephedrine	1
Norpseudoephedrine	1

Drugs Detected, Continued

ANTICONVULSANTS

Diphenylhydantoin (Dilantin)	6
Carbamazepine (Tegretol)	5

ANTIPSYCHOTIC AGENTS

Chlorpromazine (Thorazine)	2
Thioridazine (Mellaril)	9
Haloperidol (Haldol)	1

MISCELLANEOUS

Carbon Monoxide	16
Acetone	8
Quinine	2
Carisoprodol	3
Verapamil	1
Cyanide	1
Isopropyl alcohol	1
Phentermine	1
Chloral Hydrate	3
Ethylene Glycol	1
Disulfiram	1
Sodium Azide	1

ANTI-ANXIETY AGENTS

Diazepam (Valium)	67
Nordiazepam	79
Chlordiazepoxide (Librium)	7
Temazepam (Restoril)	3
Alprazolam (Xanax)	3
N-Desalkylflurazepam	3
Hydroxyzine	1
Clonazepam (Klonopin)	1
Flurazepam (Dalmane)	1
Triazolam (Stelazine)	1
Meprobamate	11
Lorazepam	3

TOXICOLOGY CASES

July 1995 - June 1996

Year / Month	Medical Examiner	Forensic Toxicology*	Total Cases	Total Tests Performed
1995				
July - September	424	275	699	7,100
October - December	446	341	787	9,090
1996				
January - March	485	278	763	8,943
April - June	431	476	907	8,728
TOTALS	**1,786**	**1,370**	**3,156**	**33,871**

* Cases in which specimens were referred to the Medical Examiner's Toxicology Laboratory for forensic toxicological examination generally were criminal cases in which the presence of drugs was suspected either in the victim or suspect of the crime. DUI, 11550, management control, out-of-county and other miscellaneous cases are included in this tabulation.

ABUSE DRUGS

The role of abuse drugs in deaths during the 1995-96 fiscal year is presented in this section. The four abuse drugs most commonly seen in Medical Examiner's cases - cocaine, heroin, amphetamines and PCP - will be examined. The number of cases in which these drugs were found either alone or in combination with other abuse drugs are presented in Table XXXII, page 65. In drug caused deaths, heroin was the most frequently observed drug of abuse where drugs were present either alone or when drugs were present in combination.

Distribution by Sex (Table XXXIII, page 66)

In deaths caused by abuse drugs (DC = drug caused), where the drugs were present either singly or in combination, 75-100% of the deceased individuals were males, depending upon the abuse drug.

Distribution by Race (Table XXXIII, page 66)

White/Non-Hispanic (W-NH) - In drug-caused deaths where abuse drugs were present singly, the white non-Hispanic racial group predominated in deaths caused by heroin and amphetamines. In drug-caused deaths where abuse drugs were present in combination with other abuse drugs, the white non-Hispanic racial group predominated in deaths caused by all abuse drugs being studied.

Black/Non-Hispanic (B-NH) - In drug-caused deaths and drug-related deaths where abuse drugs were present singly, the black non-Hispanic racial group predominated only in deaths where cocaine was present (60% and 57%, respectively).

White/Hispanic (W-H) - This racial group was most heavily represented in drug-caused deaths and drug related deaths where cocaine was present alone.

Distribution by Age (Table XXXIII, page 66)

The lowest mean age was seen in drug-related deaths with amphetamines present alone (30.7 years) while the highest mean age was seen in drug-caused deaths with cocaine present alone (45.4 years).

Alcohol Involvement (Table XXXIII, page 66)

The presence of alcohol in the blood of abuse drugs users was most often associated with deaths caused by heroin alone (71%) and was least associated with deaths caused by amphetamines alone (25%).

ABUSE DRUGS (Continued)

Deaths Involving Cocaine (Figure 25, page 67 and Tables XXXIV and XXXV, page 68)

Cocaine alone was the cause of death in 15 cases by overdose, three less than in 1994-95. Cocaine alone was also present in 35 drug-related deaths (See Table XXXIV) including 6 ruled to be accidental, 3 ruled to be by suicide, and 26 ruled to be by homicide. Notably, 22 of these 35 drug-related deaths (63%) were due to gunshot or stabbing.

Cocaine in combination with other drugs was the cause of death in 90 cases by overdose, a 34% increase from 1994-95. Cocaine in combination was also present in 21 drug-related deaths (See Table XXXV) including 6 cases ruled to be accidental, 3 cases ruled to be by suicide, and 12 cases ruled to be by homicide. Of these 21 deaths, 12 (57%) were due to gunshot or stabbing.

The number of deaths due to cocaine over the last 9 fiscal years is shown in Figure 25. It can be seen that the number of deaths due to cocaine increased by 24 from 1994-95.

Deaths Involving Heroin (Figure 25, page 67 and Table XXXVI, page 70)

Heroin alone was the cause of death in 36 cases by overdose, an increase of 33% from the preceding fiscal year. Heroin alone also was present in 3 drug-related deaths. The involvement of heroin alone in drug-related deaths was very low as compared to the involvement of cocaine or amphetamines in this type of death, both in number and manners of death.

Heroin in combination with other drugs was the cause of death in 111 cases by overdose, a 25% increase from the previous fiscal year total of 89 cases and a 178% increase over fiscal year 1991-92's 40 cases. Heroin in combination was present in 12 drug-related deaths, 4 (33%) of which were due to gunshot.

The numbers of deaths due to heroin over the last 22 fiscal years are shown in Figure 27, page 72. The number of such deaths for 1995-96 is the highest seen during the last 22 fiscal years.

Deaths Involving Amphetamines (Figure 25, page 67 and Table XXXVII, page 71)

Amphetamines alone were the cause of death in 2 cases by overdose, a decrease of 6 cases from the previous fiscal year. Amphetamines alone were also present in 9 drug-related deaths, 5 of which (55%) were the result of gunshot or stabbing.

Amphetamines in combination with other drugs were the cause of death in 23 cases by overdose, a decrease of 26% from the previous fiscal year. Amphetamines in combination with other drugs were present in 5 drug-related deaths, 2 of which (40%) were due to gunshot or stabbing.

Abuse Drugs Present in Violent Deaths (See Figure 26, page 69)

Cocaine is the drug of abuse seen most frequently in deaths by homicide, suicide and vehicular deaths.

SAN FRANCISCO MEDICAL EXAMINER'S CASES

TABLE XXXII. ABUSE DRUGS

Abuse Drugs Present Alone

Drug	Drug Caused Deaths	Drug Related Deaths	Role Unclear	Incidental Findings
Cocaine alone	20	35	2	5
Heroin alone	38	3	3	3
Amphetamines alone	5	9	4	1
PCP alone	0	0	1	0

Abuse Drugs Present in Combination with Other Drugs

Drug	Drug Caused Deaths	Drug Related Deaths	Role Unclear	Incidental Findings
Cocaine in combination	91	21	4	8
Heroin in combination	115	12	1	9
Amphetamines in combination	23	5	2	2
PCP in combination	0	2	0	0

TABLE XXXIII. ABUSE DRUGS

INCIDENCE BY SEX, RACE, AGE, AND ALCOHOL INVOLVEMENT

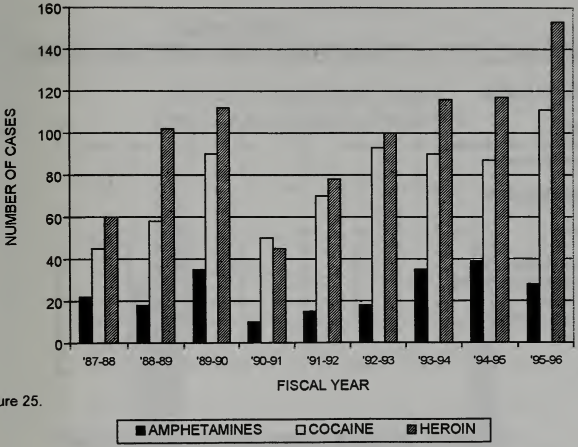
Drugs Present Singly

	SEX		RACE					
Drug	% M	% F	% W-NH	% W-H	%B-NH	Mean Age	% With Alcohol	Ave. Alc. Conc. (g%)
Cocaine - DC*	75	25	25	10	60	45.4	35	0.09
Cocaine - DR**	91	9	14	20	57	36.0	43	0.14
Heroin - DC*	82	18	87	5	3	39.7	71	0.20
Herion - DR**	33	67	33	0	67	40.0	33	0.22
Amphet. - DC*	80	20	80	0	20	39.6	25	0.06
Amphet. -DR**	100	0	30	11	44	30.7	22	0.12
PCP - DC*					NONE			
PCP - DR**					NONE			

Drugs Present in Combination

	SEX		RACE					
Drug	% M	% F	% W-NH	% W-H	%B-NH	Mean Age	% With Alcohol	Ave. Alc. Conc. (g%)
Cocaine+ - DC*	88	12	65	8	25	40.9	45	0.12
Cocaine+ - DR**	76	24	38	14	38	35.6	43	0.08
Heroin+ - DC*	87	13	76	9	15	39.9	48	0.13
Heroin+ - DR**	67	33	25	0	42	35.8	42	0.10
Amphet.+ - DC*	91	9	91	4	4	38.9	27	0.11
Amphet.+ - DR**	80	20	60	20	0	39.0	40	0.03
PCP+ - DC*	0	0	0	0	0	-	-	-
PCP+ - DR**	100	0	0	100	0	31.0	50	0.13

* DC = Drug Caused
** DR = Drug Related



DEATHS DUE TO AMPHETAMINES, COCAINE AND HEROIN

BY FISCAL YEAR

Figure 25.

DEATHS INVOLVING COCAINE

TABLE XXXIV. COCAINE PRESENT ALONE

	Manner of Death					
CAUSE OF DEATH	ACC	SUI	HOM	NC	UND	TOTALS
Drug Caused Deaths						
Overdose	15	0	0	0	0	15
Intracerebral Hemorrhage	4	0	0	0	0	4
Myocardial Infarction	1	0	0	0	0	1
Drug Related Deaths						
Asphyxia	0	0	1	0	0	1
Fall	3	0	0	0	0	3
Gunshot Wound	0	3	13	0	0	16
Multiple Traumatic Injuries	1	0	4	0	0	5
Head Trauma	0	0	2	0	0	2
Stabbing / Cutting	0	0	6	0	0	6
Vehicular	2	0	0	0	0	2
TOTALS	**26**	**3**	**26**	**0**	**0**	**55**

TABLE XXXV. COCAINE IN COMBINATION WITH OTHER DRUGS

	Manner of Death					
CAUSE OF DEATH	ACC	SUI	HOM	NC	UND	TOTALS
Drug Caused Deaths						
Overdose	80	6	0	0	4	90
Intracerebral hemorrhage	1	0	0	0	0	1
Drug Related Deaths						
Cardiomyopathy / Myocardial Isch.	2	0	0	0	0	2
Gunshot Wound	0	2	10	0	0	12
Hanging	0	1	0	0	0	1
Head Trauma	1	0	1	0	0	2
Intracerebral Hemorrhage	1	0	0	0	0	1
Multiple Traumatic Injuries	1	0	1	0	0	2
Sepsis	1	0	0	0	0	1
TOTALS	**87**	**9**	**12**	**0**	**4**	**112**

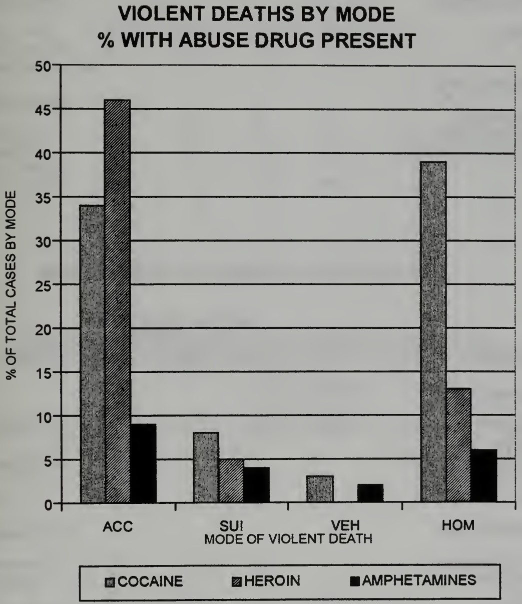

VIOLENT DEATHS BY MODE
% WITH ABUSE DRUG PRESENT
% OF TOTAL CASES BY MODE
50
45
40
35
30
25
20
15
10
5
0
ACC
SUI
VEH
HOM
MODE OF VIOLENT DEATH
▨ COCAINE
▨ HEROIN
■ AMPHETAMINES

Figure 26.

TABLE XXXVI. DEATHS INVOLVING HEROIN

HEROIN PRESENT ALONE

	Manner of Death				
CAUSE OF DEATH	ACC	SUI	HOM	UND	TOTAL
Drug Caused Deaths					
Overdose	36	0	0	0	36
Sepsis	2	0	0	0	2
Drug Related Deaths					
Gunshot Wound	0	0	1	0	1
Multisystem Failure	0	0	0	1	1
Myocardial Hypertrophy	0	0	0	1	1
TOTALS	**38**	**0**	**1**	**2**	**41**

HEROIN PRESENT IN COMBINATION WITH OTHER DRUGS

	Manner of Death				
CAUSE OF DEATH	ACC	SUI	HOM	UND	TOTAL
Drug Caused Deaths					
Overdose	103	4	0	4	111
Hepatic Necrosis	1	0	0	0	1
Intracerebral Hemorrhage	1	0	0	0	1
Cardiomyopathy	1	0	0	0	1
Sepsis	1	0	0	0	1
Drug Related Deaths					
Bronchopneumonia	1	0	0	0	1
Gunshot Wound	0	0	4	0	4
Hanging	0	1	0	0	1
Head Trauma	1	0	1	0	2
Intracerebral Hemorrhage	1	0	0	0	1
Multiple Traumatic Injuries	1	0	1	0	2
Sepsis	1	0	0	0	1
TOTALS	**112**	**5**	**6**	**4**	**127**

TABLE XXXVII. DEATHS INVOLVING AMPHETAMINES

AMPHETAMINES PRESENT ALONE

Manner of Death

CAUSE OF DEATH	ACC	SUI	HOM	UND	TOTAL
Drug Caused Deaths					
Overdose	2	0	0	0	2
Myocardial Infarction	2	0	0	0	2
Intracerebral Hemorrhage	1	0	0	0	1
Drug Related Deaths					
Gunshot Wound	0	1	1	0	2
Jump - Building	0	1	0	0	1
Jump - G. G. Bridge	0	1	0	0	1
Ruptured Aneurysm	1	0	0	0	1
Sepsis	1	0	0	0	1
Stabbing	0	0	3	0	3
TOTALS	**7**	**3**	**4**	**0**	**14**

AMPHETAMINES PRESENT IN COMBINATION WITH OTHER DRUGS

Manner of Death

CAUSE OF DEATH	ACC	SUI	HOM	UND	TOTAL
Drug Caused Deaths					
Overdose	22	1	0	0	23
Drug Related Deaths					
Bronchopneumonia	1	0	0	0	1
Gunshot Wound	0	1	1	0	2
Hanging	0	1	0	0	1
Multiple Traumatic Injuries	0	0	1	0	1
TOTALS	**23**	**3**	**2**	**0**	**28**

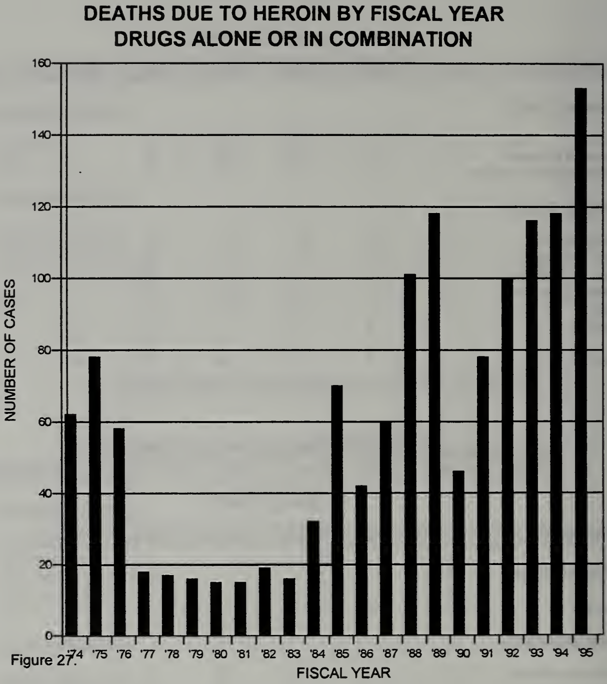

DEATHS DUE TO HEROIN BY FISCAL YEAR
DRUGS ALONE OR IN COMBINATION
NUMBER OF CASES
160
140
120
100
80
60
40
20
0
'74
'75
'76
'77
'78
'79
'80
'81
'82
'83
'84
'85
'86
'87
'88
'89
'90
'91
'92
'93
'94
'95
FISCAL YEAR

Figure 27.

GLOSSARY

ALKALOID OF MORPHINE GROUP	Typically referred to as morphine-type alkaloid, it is the chemical substance found in body fluids after the injection of heroin or other drugs derived from opium
TOXICOLOGY NOT VALID OR ELIMINATED	This term indicates that the deceased lived long enough after the injury to have eliminated some or all toxic agents from the body
FORENSIC PATHOLOGY	The specialty field of medicine involving the application of medical and pathology principles in determining the cause and manner of sudden, unexpected, and medically unattended deaths. This includes the type and nature of injury, public health hazards, type or nature of homicide weapon, the relation of injury to death and interpreting other factors for the court. These data are prepared and presented to the judicial system or public health interests in keeping with the best available knowledge
MODE OF DEATH	Indicates the manner of death, such as natural, accident, suicide or homicide, and is to be distinguished from cause of death, which is purely a medical determination
MODE UNDETERMINED	With the cause of death determined, investigative data do not clearly support one of two possible modes and either one is possible without prejudice
PATHOLOGY	That branch of medicine which deals with the essential nature of disease, especially in the structural or functional changes in tissues, organs or systems of the body causing disease. It involves the diagnosis of disease by microscopic or chemical analysis
SEROLOGY	That branch of pathology which deals with the analysis of blood and body fluids. Blood types for identification, exclusion of a suspect or judicial purposes are examples of the use in this office
TOXICOLOGY	The scientific study of poisons, their detection, actions and treatment. The relationship of drug levels to emotional or personality change, behavioral or reasoning ability are frequent decisions based on these data
MEDICAL EXAMINER	A physician specifically trained in forensic pathology who is responsible for investigating and determining the cause and manner of sudden or unexpected death
AUTOPSY	A scientific dissection of the human body to determine the cause and nature of death in order to detect public health hazards, determine the method or type of death in homicides and improve the level of medical care in the community. In some cases, showing that no injury or wrongdoing was present is of great emotional and stabilizing value to the family

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